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FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

MEMBER

FEBRUARY, 1940

Vol. 93, No. 2

Large, High Powered Streams Are Used by the Los Angeles Fire Department to Protect Its Harbor Traffic from Fire Damage

It's no longer a SECRET *that*

TYPE 500

the **TYPE 500** is the greatest value in a 500 G.P.M. pumping engine we have ever produced! For nearly a year this model has been winning enthusiastic acceptance. We are now making formal announcement of the addition of this unit to our line of *modern* AMERICAN-LaFRANCE fire engines.

The New TYPE 500 *has Outstanding . . .*

UTILITY Ample capacity is provided for carrying hose and other equipment. All pump controls and gauges are in a convenient, central panel.

MANEUVERABILITY Easy steering and a short turning radius permits exceptional maneuverability in narrow streets and congested traffic.

PROTECTION There is comfort in the wide and roomy, adjustable seat with safety and protection in the wide doors for the driver and officer.

POWER The 150 B.H.P. heavy duty 8 cylinder engine assures good acceleration in congested traffic and unusual hill-climbing ability.

RESERVE A reserve in excess of the rated capacity is available for emergency requirements when pumping.

The same features are found in the new **TYPE 600,** which is rated at 600 G.P.M.

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AMERICAN-LaFRANCE-FOAMITE CORPORATION

Engineers and Manufacturers

ELMIRA, N. Y.

Equip your Men with KEROTEST ULTRALITES

GUARANTEED TO THROW A BRIGHT BEAM OF LIGHT 440 YARDS

The Ultralite is complete with carrying kit, pistol-grip searchlight, long-life storage battery and comfortable Shoulder Harness.

Note flat shaped storage battery pack conveniently carried in harness on the back.

Get the drop on night firefighting with the pistol-grip Kerotest Ultralite!

THEY'RE LIGHT WEIGHT . . .
DURABLE . . . PROVIDE 85000
CANDLE POWER—*ANYTIME, ANYWHERE*

Super-powered for every fire fighting emergency, the Kerotest Ultralite with its handy pistol-grip, represents the most powerful portable light ever designed. Guaranteed to throw a bright beam of light a quarter of a mile, the Kerotest Ultralite finds wide usage among firemen for fighting night fires everywhere.

Its unique and exclusive pistol-grip makes possible easy and convenient spotlighting with one hand . . . assures greater accuracy in pointing light beam . . . provides instant trigger-finger operation.

Indispensable equipment for every modern fire truck, the Kerotest Ultralite can be either plugged into the truck battery or used with compact multiple-cell portable battery as illustrated. Write for details!

KEROTEST MANUFACTURING CO.
PITTSBURGH PENNSYLVANIA

KEROTEST

A Consolidation of
FIRE AND WATER ENGINEERING,
THE FIRE ENGINEER and
FIRE PROTECTION

FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

FRED SHEPPERD
Editor
N. N. WOLFERT, Assistant Editor.

All Aboard for Spokane!

AUGUST 5-8 has just been set as the date for the 1940 Annual Convention of the International Association of Fire Chiefs.

● Earlier than usual, the 1940 Convention will be held at Spokane, Wash. Plans are already under way to make this meeting the finest yet held!

● And so, the July issue of FIRE ENGINEERING will be the Convention Issue—and we promise that it will be even better than previous Convention Issues.

● We urge you to put down the dates right now—so that all who possibly can will be at the Spokane meeting August 5, and all manufacturers will make plans to be well represented in the July issue of FIRE ENGINEERING.

● All aboard for Spokane!

The Publishers

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MEMBER
Audit Bureau of Circulations
Associated Business Papers

Published the tenth of each month by
CASE - SHEPPERD - MANN PUBLISHING CORPORATION
Also publishers of "Water Works Engineering" and "Municipal Sanitation"
General Offices—24 West 40th Street, New York, U. S. A.

KARL M. MANN, President
I. HERBERT CASE, Vice-Pres. and General Manager

SUBSCRIPTION PRICE
U. S. and Canada, $2 a year;
Foreign, $3; Single Copies, 25c.

ALFRED J. HOUGHTON, Eastern Representative; H. S. ESSEX, Production Manager.
CHICAGO: 6 N. Michigan Ave.—W. S. CLEVENGER, L. M. ROCHE; SAN FRANCISCO: 444 Market St.—CHARLES H. WOOLLEY, H. N. HARNER
Entered as second class matter April 15, 1929, at the Post Office at New York, N. Y., under the Act of March 3, 1879.
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For 1940, we offer the new Emerson Model of the E & J Resuscitator, Inhalator, and Aspirator.

In the opinion of users who have already tried it, this model represents the latest development in medical and mechanical service.

You will be interested in its refinements and improvements.

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We shall appreciate your mentioning FIRE ENGINEERING *when writing advertisers*

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MILLIONS invested in fire fighting equipment—*yet*

What's Wrong?...

in many instances it was that factor known as the DELAYED ALARM. No part of a municipality's investment in fire protection begins to operate until an alarm is given.

last year's fire loss amounted to over $300,000,000

And, surveys made in a large number of cities indicate that the fire alarm is too frequently a neglected element in the municipal fire defenses.

Fire alarm boxes, well and conspicuously placed, can reduce fire losses by making it easier to send the alarm . . . a fire can gain appalling headway in a few moments, yes—seconds.

Why not let Gamewell engineers make a survey of the fire alarm system in your town? No obligation.

Make the Three-Fold Fire Alarm System your city's "first line of defense against Fire!"

THE GAMEWELL COMPANY

NEWTON UPPER FALLS, MASSACHUSETTS

FIRE ENGINEERING

FEBRUARY, 1940 VOL. 93 NO. 2

With the Editor

Inspections Would Help The nationwide cold spell of the past month resulted in an epidemic of church fires. Three churches burned in New York City and environs alone in a period of one week.

The only plausible explanation of the epidemic is that it was necessary to force the heating plants of these buildings to make them comfortable during the frigid weather.

While the total number of all types of fires increased during the period, the increase in church fires was abnormal.

The answer to the problem of preventing church fires seems to be more thorough inspections. Before the cold weather arrives, rigid inspection of the heating plant, flues and fuel storage should be made. Scrutiny for defects in chimneys should be included, as well as a check on soot condition therein.

Although fall church inspection should include electrical equipment, and particularly motors such as used on pipe organs and oil heating systems, hazards in the latter may be present at all times irrespective of the weather. Other fire hazards, such as storage of discarded equipment and rubbish in furnace room and basement, the organ loft, cooking facilities, and storage spaces in upper part of building must also be fully covered by inspections.

While no fire may occur from the heating plant when operated only at part of its capacity, if it has to be pushed hard for protracted periods during cold spells, temperatures may be built up in adjacent materials or in flue or chimney to sufficient height to start a fire. Only careful inspection, with prompt correction of dangerous conditions thereafter, can head off fires of this origin.

Once a fire gains headway in the average church structure, complete destruction of the building is likely to result. The large concealed areas between ceiling and roof, the ducts and combustible materials in organ loft, the presence of so many other combustibles, such as furniture, carpets, and woodwork in the building itself, all contribute to a hot, fast traveling fire. Fighting such a fire is difficult and dangerous, due to falling slate shingles and other debris and the early collapse of the roof and belfry.

The best way to keep church losses down is to prevent fires from starting; and thorough inspection is the most effective means of accomplishing this.

Fred Sheppard

Research Work in the Department

By ANTHONY J. MULLANEY
Fire Deputy Chief Fire Marshal, Chicago

WITHIN the memory of those present, many of us recall that not many years ago a lawyer's education consisted of "reading law" in the office of a well reputed practicing attorney In the same era, a doctor's entire course of training was approximately two years. We know that this amount of pre-legal or pre-medical study will not suffice today, neither will an academic knowledge of fire fighting problems be sufficient for the successful administration of a modern fire department. Every person in any line of activity who strives to keep abreast of his profession must study continuously in order that he may know the latest features that have developed in his line of occupation.

Rapid Strides in Recent Years

In the field of fire control, progress has developed an entirely new Fire Chief and department. This evolution has taken rapid strides, especially in recent years. Aside from the Chief's knowledge of fire fighting, he must know hydraulics for application to water supply systems and the development of adequate streams, electricity for a continuous check-up of electrical installations and attendant hazards, architecture for the better understanding of building processes in their relation to fire control, and lastly, he must have a working knowledge of chemistry to appraise the hundreds of chemicals now being used in industry many of which are potential life and fire hazards.

In the present instance, we are concerned with the sciences and research work involved in our attempt to safeguard life and property from fire.

Need for Information

Inasmuch as fire is no respecter of persons or industries, it must naturally follow that those engaged in the fight against fire can do a much better job if they are familiar with the various scientific facts that pertain to the agencies used in the actual work of fire control and extinguishment, and the scientific facts that pertain to the protection of the industries involved.

Every phase of a fire executive's work requires constant and intensive study and research of direct and related problems. By mentioning a few, such as developing high-calibered streams, ladder construction, ventilation, radio for fire department purposes, fog nozzle development, refrigeration problems, chemical storage, etc., etc., the writer recognizes that as many important topics have been omitted as have been listed.

A Call for Research

Indicative of the character of study and research required of a fire department executive, was an assignment I received from my Commissioner, Michael J. Corrigan, some four years ago. Our marine service was woefully weak and we needed at least one new fireboat. The City Council appropriated the money and from that point the problem was ours. What size and type should we specify? What type power, consistent with good service and economical operations was best suited for a fireboat? These were paramount questions, and because of the fact that very few fire-boats had been built in recent years, it was necessary to go into the features of all types of power before specifications were written.

An inspection tour to Atlantic Seaboard cities, included actual performance tests and demonstrations of marine fire equipment and provided information of inestimable value in preparing a survey report and recommendations which included the following findings:

The capacity of a fireboat consistent with Chicago's needs was arrived at as 7,500 gpm at 150 pounds pump pressure.

Design and construction embraced all steel welded constructed hull and deckhouse providing full quarters for a crew of eight men on each shift.

Study of Power Needs

Power sources were considered such as steam electric, gasoline electric, diesel electric, steam, gasoline and diesel direct. After much study, discussion and opposition by various power manufacturers, we made bold enough to submit conclusions favoring diesel power without conversion to electric which would increase the cost far beyond anticipation, would require a larger sized hull, and would finally reduce the original power output of the diesel engines. Opposition to our theory were statements concerning failure of maneuverability and lack of flexibility, but since our boat has been in service it has been proven beyond any doubt that it can be maneuvered and is as flexible as any fireboat in service anywhere.

During the period of construction, some minor changes from the original design were made and at the test of acceptance, the pumping capacity was 10,000 gallons, maneuverability was proven, combinations of pump pressures were obtained whereby a 265-pound nozzle pressure of a three-inch nozzle was developed.

Fireboat Shows New Designs

We are satisfied that Chicago has a fireboat into which have been included all the outstanding features embodied in the design, construction and operation of all the better fireboats in service in the country, and one which will serve Chicago's needs for many years to come. I do not want to leave the thought, however, that our unit should be accepted as a model or standard because every city and community needing water front fire protection has its own problems, and in many of these cities a boat of two to three-thousand gallons capacity will serve as effectively as a ten to twenty-thousand gallon capacity boat will serve Chicago or New York.

A few years ago, fire apparatus manufacturers brought out the enclosed cab type equipment aiming to provide for the safety and protection of the men responding to and returning from fires, and stressing very definitely added safety features as well as protection against the elements especially when returning, exhausted and wet, from long sieges at large fires during frigid weather. Here again the ingenuity and imagination of chief fire department officers were challenged. The original jobs were cumbersome of appearance and op-

From an address delivered at the twelfth annual Fire Department Instructors' Conference, Memphis, Tenn.

eration, and many features, such as accessibility to tools, equipment and hose, available in standard types of apparatus were sacrificed to provide room for the enclosed feature of the job. At our repair shop we made exhaustive studies of this problem and finally hit upon a design which we consider an improvement over any job on the market. We have six enclosed type pumping units in our service all built to a large extent on our lines and in my opinion we have a sleek streamlined job which not only encloses the members riding thereon but also encases all portable equipment and devices except the fire hose. Although the over-all measurement is twenty-seven feet (4½ feet longer than the conventional type apparatus) the new jobs have better turning radius than the older apparatus.

It is not intended to create the impression that all fire department research work is being done in the Chicago Department. This is furthest from my mind, and is best evidenced by the great number of designs of enclosed jobs we see in the various sections of the country, and each of these designs patterned to suit local conditions.

Apparatus Research

While on the subject of apparatus I wish to state that we are now developing a squad apparatus, six inches shorter than the type in use. This new job will afford one hundred per cent more cubical storage space and will allow the crew to avail themselves of enclosed cab accommodations, or if desired they may ride outside on weather proof seats which form the covers for the tool and equipment compartments.

Our experience in apparatus research work prompts the following observation. When chief officers of fire departments muster enough courage to take advantage of the cab-over-engine or even semi-cab-over-engine type apparatus, all apparatus can be constructed on shorter over all dimensions, and by increasing axle and body measurements, can be made to carry more hose and portable equipment, afford better visibility and easier maneuverability and gave a greater factor of safety to occupants and to the apparatus.

At the present time our department, in collaboration with the Chicago office of the National Board of Fire Underwriters and Armour Institute of Technology, is conducting an exhaustive investigation of the problem of development of major fire streams embracing higher pressures and the proper design of monitor equipment best suited for such fire streams.

In our preliminary tests it has been observed that pressures in excess of those prescribed by the Freeman Tables of over forty years ago can attain a far better result in the extinguishment of serious conflagrations, and from the knowledge gained thus far in the tests I recommend that nozzle pressure of 150 pounds or greater be developed and used if required to attain carrying distance in reaching the objective.

Nozzle Characteristics

During this winter we plan to experiment with the construction of nozzle barrels and tips to determine the effectiveness of fins, feathers, spiders and so forth installed in larger sized pipes and when satisfied with improved deisgns, we contemplate putting the various sized pipes through tests ranging in pressure from 100 pounds to 225 pounds, or until the maximum limit has been reached.

The test methods arrived at by the representatives of the above organizations embrace positive demonstrations of the maximum effective reach of fire streams at accepted angles.

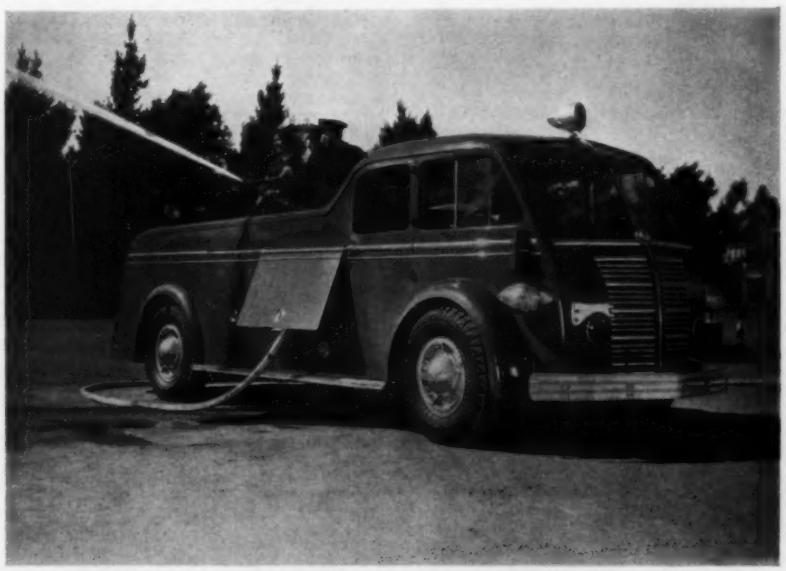
For illustration, — the river side elevation of the Chicago Civic Opera Building has been measured and marked off from a given point for heights and distances and the entire area illuminated by powerful back lighting. Thus, the exact breaking points of streams and their effectiveness can be observed and measured from the floor level by the committee interested in the tests.

By charting the various pressures, indications are that greater distance is gained as pressure is applied. Even though mechanical efficiency is reduced, and the fire stream spreads, it can still be considered good fire fighting technique to combat fires of threatened conflagration proportions with such streams. The recent South Chicago grain elevator fire of May 11, 1939, emphasized this need.

This subject is of such great importance that I am merely presenting it to arouse and activate the minds of all present for further study.

Development of Fog Nozzles

I am particularly well pleased to include in my discussion a few brief remarks concerning the development of fog nozzles. As is well known, fog nozzles and their practical application in the science of oil and chemical fire extinguishment is not an entirely new idea and since the theory has been more or less revived recently and keen interest displayed in its development both by apparatus manufacturers and fire officials, we in Chicago joined the movement and now have a fog nozzle that not only



New Fire Truck for Protection at Motion Picture Studios

The New Metro-Goldwyn-Mayer fire-fighting apparatus has a 211 horsepower motor mounted horizontally, saving from six to fifteen feet in overall length. It has an average shorter wheelbase of six feet than conventional types, and has approximately a ten-foot shorter turning radius than the conventional fire trucks of the same capacity. The truck is a 1,250-gallon triple combination pumper, is capable of seventy-five miles an hour, and is receiving the able assistance of fellow firemen, Laraine Day, young Metro-Goldwyn-Mayer featured player as "acting fire chief" gives the studio fire department's new streamlined fire engine a test. L. H. Beatty and T. G. Donovan assist.

will give excellent results in the field of oil and chemical fires, but in general fire-fighting activities as well.

Just a few weeks ago, one of the country's largest utility companies constructed a bank of two large sized transformers and ignited them to test the efficiency of the nozzle. Accord ing to the preliminary report of that company, the performance of the fog nozzle was comparable to the effectiveness of the various chemical extinguishing agencies used in other similar tests conducted by them. In fact, credit was given the fog nozzle for possessing additional features.

Previously I mentioned that interest has been revived in fog nozzles, and obviously the same is true of ladders and ladder construction, particularly since the introduction of metal ladders. As to the merits of this newer type, as against wood ladders, I offer no comment because it is my personal opinion that each has a specific merit and that each is finding its proper position in the fire service.

Ladder Research

However, the general subject of ladder construction and test is in competent hands at the present writing as Prof. L. H. Provine of the University of Illinois is conducting extensive tests on wood constructed ladders and we anticipate a comprehensive report from him on this subject which I am sure will throw considerable light on an important subject that has long been overlooked.

On May 19, 1934, Chicago experienced its second most serious fire at the Chicago Union Stock Yards. Over 100 pumping units operated at the conflagration and during the progress of this fire every adverse condition happened that could be comparable to war times.

The area involved was over half a square mile and the fire-fighting fronts were located in what was thought to be the most strategic positions. The fire broke through our lines cutting off many units and preventing communication with the central point of command.

Radio Communication Necessary

It was readily recognized that radio communication at the scene of large fires was essential and from that date on developments have been made whereby not only two-way radio with a central point of command is established at fires, but two-way portable radio sets have been perfected and placed in service which operate from and to a central point of command thus enabling the chief officer in charge at the scene to direct all movements.

These portable sets have been designed by Fred Schnell, radio technician of the Chicago Police Department. They are compact, easily carried in and around fires and weigh only thirteen pounds. It is believed that their use at large and threatening fires will be most valuable and will have a definite rating for all fire departments throughout the country.

In this brief discussion only a general outline of the research problem can be attempted. I have endeavored to mention but a few of the important and progressive changes in our profession in recent years resulting from an investigation.

FIRE DEPARTMENT INSTRUCTORS HOLD CONFERENCE IN MEMPHIS

Sessions Held on Unified Training Activities and Problems, and on Use of Motion Pictures as an Educational Media

THE twelfth annual meeting of the Fire Department Instructors' Conference was held in Memphis, Tenn., January 9 to 12, with the Memphis Fire Department acting as host. This is the sixth successive year that the Conference, under the joint sponsorship of the Western Actuarial Bureau and the Memphis Fire Department, has met in that city. The conference this year, as in the past, was under the Chairmanship of Richard E. Vernor of the Western Actuarial Bureau.

Large Registration

Approximately 250 representatives from twenty-five states and the District of Columbia were registered. Those in attendance included prominent chiefs, paid and volunteer; assistant chiefs; subordinate officers; drillmasters; fire prevention superintendents; representatives from state departments of education and from state universities; state training program supervisors and instructors; state Fire Marshals; insurance rating bureau engineers; fire prevention experts and many others interested in the advancement of training methods in the fire service.

Hon. Clifford Davis, Vice-Mayor of Memphis, and Commissioner of Public Safety, welcomed the delegates. Four morning sessions were devoted entirely to the presentation of addresses, papers and demonstrations on topics of current interest in the training field.

Special luncheon features included a major address each day. Afternoon sessions were largely given over to a general conference on the subject of unified training activities and the problems involved in organizing and administering state and local training programs.

Exhibition drill evolutions were staged at the fire department drill tower. Of special interest was the exhibition drill put on by members of the Sebring, Ohio, Junior Fire Department.

Motion Pictures for Training

Two evening sessions were devoted to discussion of the advantages of using motion pictures in fire training, fire prevention, fire investigation and public relations work. Several interesting pictures were shown to illustrate how they might best be used to advantage. Special meetings were also arranged for insurance rating bureau engineers, and for the International Association of Fire Department Instructors.

The conference session was climaxed by a buffet supper and dance arranged by the Memphis Fire Department.

Delegates to the Conference were loud in acclaiming this year's session the most profitable from the viewpoint of actual accomplishment and enthusiasm.

Hydraulic Loss in Fire Hose Reviewed

The Underwriters Laboratories recently announced an issue in their Research Bulletin Series, Bulletin No. 12, entitled "Hydraulic Friction Losses in 1½-inch and 2½-inch Cotton Rubber-Lined Fire Hose."

The material contained in the bulletin is the result of research conducted by the Hydraulic Engineering Department of the Laboratories. Determinations of loss of head due to fluid friction with water flowing under pressure in cotton rubber-lined Hose have been made a number of years ago. The purpose of this study was to develop information of this kind with regard to hose manufactured by present-day methods. The investigation was limited to the more commonly used 1½-inch to 2½-inch sizes of hose. Assuming that the loss of head was affected by the number of cotton jackets on the hose, tests were run on single and double-jacketed hose.

A description of the laboratory set-up and the test methods, accompanied by illustrations, are included in the bulletin. The method used in conducting each test is described, and a table of results obtained from each test is given.

As a result of this investigation, the following conclusions are indicated:

1. A tendency for the loss of head to decrease with an increase of the effective water pressure.
2. That, other contributing factors being equal such as lining roughness, single jacketed hose offers less resistance to water flow than double jacketed.
3. The labeled hose made with present-day methods, and considered from the standpoint of averages, has a slightly lower loss of head than the hose previously investigated.

3-PLATOON SYSTEM COMPLETED BY NEW YORK FIRE DEPARTMENT

Uniformed Force Increased by Fifty-four Per Cent at an Added Yearly Cost of $12,000,000—Operation of Plan

By Clarence E Meek

THE sounding of the test taps on the alarm circuits at midnight roll-call December 31, 1939, signalled the completion of the installation of the three-platoon system of duty in the fire department of New York City.'

The 1936 session of the state legislature adopted two bills limiting the hours of duty of all members of the department below the grade of Chief of Department to one eight-hour tour in each twenty-four hours, with one day off each week, except in case of emergency proclaimed by the Fire Commissioner. The two bills were identical except that one—the Twomey bill—provided for a referendum. The Governor signed this bill.

Bill Ruled Illegal

On October 13, 1936, the Court of Appeals ruled that the Twomey bill had been improperly passed, the ruling being based on a technical point of procedure. The bill had come before the Court of Appeals on an application for mandamus to compel the Board of Elections to omit the question from the referendum ballots.

The defects in the passing of the bill were corrected at a special session of the Legislature called between the time of the Court of Appeals ruling and the date of the November election. and the question was included on the November 3 ballots. A heavy affirmative vote was registered by the electors of New York City, and the fire department immediately proceeded with its plans for the installation of a system which would comply with the provisions of the three-platoon law.

The act provided that no member of the department should be required to be on duty more than one eight-hour tour in any twenty-four hours, and that "all such members of the department shall be entitled to at least one day of rest in each calendar week".

Ten-Squad System Used

To effectuate these requirements, the department adopted the ten-squad system, as used in the Police Department. By the operation of the ten-squad system, the members of the uniformed force are divided into ten groups, or squads. Three groups are on duty each eight-hour shift, six groups are off sixteen hours, and one group is off thirty-two hours. This schedule gives each man thirty-two hours off each seventh day after six eight-hour tours of duty, and changes his shift each week.

The ten-group system constantly shifts the personnel of each platoon and rotates the members so that all officers and men work with all other members of their companies, or commands, at some time during the complete turn of the ten-group cycle. Assignments to groups are worked out so that senior officers of adjoining divisions and battalions, and company commanders, are equally divided among the three platoons and on duty during different tours. Members attending Schools of the Fire College, or performing special duties, are placed in the same group with the other members so detailed.

To illustrate the operation of the ten-squad system, take a thirty-man company as an example. The company would be divided into ten groups of three men each. Three groups would be on duty with each platoon, six groups would be off for sixteen hours, and one group would be off for thirty-two hours. In actual practice, the companies are not made up of even numbers of men as sufficient men must be provided in the several commands to take care of special and sick leaves, vacations, etc.

Since the inauguration of the three-platoon system, the members heretofore carried on company rosters but detailed to special duties, have been assigned to Special Service and Limited Service Squads, to the Headquarters Staff, and in the case of Chiefs' Aides, to Division and Battalion rosters.

Increase in Personnel

The installation of the three-platoon system started March 1, 1937, and was completed at the end of 1939. Extensions of the system were made at regular intervals during this period, as new men were appointed and trained. The following comparison of the allowed quota at January 1, 1937 and January 1, 1940, shows the increase of the uniformed force made necessary by the adoption of the three-platoon schedule:

	1937	1940	Increase
Assistant Chiefs	3	3	...
Deputy Chiefs	35	51	16
Battalion Chiefs	96	160	64
Medical Officers	10	12	2
Captains	339	365	26
Lieutenants	554	1,086	532
Engineers	94	130	36
Pilots	24	40	16
Firemen	5,888	8,973	3,085

This is an increase of about fifty-four per cent in the uniformed force. While twelve new companies were organized during these three years, they were offset by the elimination of sixteen second sections of double companies, so that the increase of the uniformed force can be attributed entirely to the adoption of the eight-hour day.

Deducting members assigned to department, division and battalion headquarters, and special squads, the 372 companies of the department at January 1, 1940 have an average of about twenty-nine members. The quota of company officers provides about three hundred relief and extra Lieutenants in addition to the three regular officers assigned to each unit. Officers designated as Relief Lieutenants, relieve the regular company officers on their off-days in definitely assigned companies, and extra Lieutenants replace company officers on sick and vacation leaves, and other special absences, in their respective battalions.

The Official Action Guide of the Department definitely fixes responsibilities and duties of the three or more Chief Officers assigned to each division and battalion. The senior officer is the Division or Battalion Commander, the second longest in the rank is the Second Officer in Command, the third longest in the rank is the Third Officer in Command, and the junior in the rank is the Relieving Officer.

Added Department Cost

The increased yearly cost of the three-platoon system, in salaries of the uniformed force, will be approximately $12,000,000 when the firemen appointed to provide the required increase in the quota have all attained first grade rating. This increase is represented by:

2	Deputy Chiefs. @	$7,000	$14,000
14	Division Chiefs	6,300	88,200
64	Battalion Chiefs	5,300	339,200
26	Captains	4,500	117,000
532	Lieutenants	3,900	2,074,800
36	Engineers	3,400	122,400
16	Pilots	3,500	56,000
3,085	Firemen	3,000	9,255,000
2	Medical Officers	5,000	10,000
			$12,076,600

Wright Chief of East St. Louis

Following the death of Chief Leo Lynch, East St. Louis, Mo., Assistant Chief Russel Wright was promoted to Chief of the Fire Department.

Chief Wright was appointed to the department in 1917, but left it when the United States entered the world war. He joined the 124th Field Artillery and spent one year overseas. On receiving an honorable discharge in 1919, he reentered the fire department. He was made engineer on February 1921, and he was promoted to Captain in 1936. Three years later he was made Assistant Chief.

Edgar Bergen Becomes a Member of the I.A.F.C.

The outstanding Fire Prevention Radio Program of the year was voted to Edgar Bergen and Charlie McCarthy by the International Association of Fire Chiefs. Chief Jay W. Stevens, Executive Secretary of the I.A.F.C., is shown presenting Bergen with a certificate making him a member of the Association.

JUNIOR FIRE CHIEFS IN CHARGE OF FIRE INSPECTIONS IN SCHOOLS

Chief R. A. Bogan, Baton Rouge, La., Meets with Chiefs and Aides Appointed by Each Public and Parochial School

By Ernest A. Gueymard

FIREMEN at the Central Fire Station in Baton Rouge, La., have added greatly to the effectiveness of their parish-wide program of safety instruction and inspection by establishing a Junior Fire Department with Junior Fire Chief and Assistant Chief in each of the thirty public and parochial schools. Although the leaders in each school are chosen by its principal, the program is carried out under the direction of the Baton Rouge Fire Department and under the personal supervision of Chief Robert A. Bogan, head of the department for the past twenty-one years, and past-President of the I.A.F.C., and a member of its board for four years.

Junior Fire Chiefs from Baton Rouge Schools

Firemen in Baton Rouge had made regular inspections of all school property for years. Four years ago the plan for letting the youngsters help was put into action. By getting the boys, and girls too (there are four girl fire chiefs this year), to accept positions of responsibility, the department has aroused considerably more interest in fire prevention in the schools.

Selection of Officers

Two weeks after the opening of the school session, the principals send in the names of their Chiefs and Assistant Chiefs. Fire drill leaders for each room in each school are appointed, too. Then all the Junior Chiefs and assistants are called to meet in Chief Bogan's office at the Central Fire Station. The fire department head outlines the duties of the juniors and discusses the importance of those duties.

During the third week of school, a fireman goes to each school and joins the juniors in a routine inspection of the premises, instructing them in each phase of the examination of school property for fire hazards. After that, he returns once every three months for a check-up, and in the meanwhile a close check upon conditions is kept by the Junior Chief and assistant, who make a full report each month, signed by the principal of the school, to Chief Bogan. These reports are gone over by the fire department, and any unsatisfactory condition is taken up with the principal or the parish superintendent.

The Junior Chief and assistant are in charge of all school assemblies, as well as the fire drills, which are held twice each month. They keep close check upon, not only the standard safety equipment, but upon heating equipment, fuel supplies, electrical equipment and wiring, insulation, and the amounts and types of cleaning fluids and oil on hand as well.

Special Honors for Chiefs

The positions of Chief and assistant carry with them special honor in the schools. To demonstrate the cooperation of the schools with the fire department in this program, special passes for some eighteen high school football games in which the city schools participate are given the youngsters chosen. The privilege of attending the games on a "Fire Chief's Pass" is an additional incentive to the honor which goes with the post.

Both the fire department and the school authorities are enthusiastic about this system of keeping fire hazards at a minimum. The principals of the schools are kept mindful of the necessity for safety precautions and they are aware of the school's particular shortcomings by their reading and signing of the monthly report. Fire prevention takes on a new urgency for each student, who is thus made more alert to fire hazards in his own home. The responsibility placed upon the juniors in actual case of fire has led to the development of a high degree of efficiency in emptying the buildings and evacuating crippled or handicapped children, as well as a constant alertness in watching for sources of possible fire or other hazards.

In addition, the corps of some sixty youngsters in the parish schools forms the nucleus for a fire prevention body which extends its educational influence to virtually every school child in the parish. After four years of quietly testing this method, the Baton Rouge Fire Department considers its system highly efficient in maintaining the fire danger to school children at an irreducible minimum.

Now a Woman "Spark"

Mrs. Florence Nute was made an honorary member of the Needham Fire Department, Needham, Mass. Her appointment followed her receipt of a firemen's two-way radio license. She is the only woman in the state to hold such a license.

She is the wife of a fireman and has aided at almost every fire for the past several years, both in Needham and in surrounding towns. In the future, she will ride to fires on an engine with the Chief.

New Fire Marshal Set-Up Completed

Organization of the State Fire Marshal's office in East Lansing, Mich., under the Commissioner of the Michigan State Police, has been completed. One of the first activities of the office under its new organization plan was to start training the personnel for fire prevention work and fire investigation. Eight officers, one from each of the eight state police districts, were given a five weeks' course at the Fire Prevention Bureau of the Detroit Fire Department. This included instruction from the Arson Squad of the Detroit Police Department.

The Fire Marshal Division routine work is inspection of all theatres twice each year and inspection of all dry cleaning plants once each year. All other inspection work is done at the request of individuals or upon receipt of a complaint.

Cleaning Establishment Destroyed

Fire destroyed a cleaning and dyeing establishment in Wilmington, Del., with a possible loss of more than $100,000. It was believed that the fire started in the boiler room of the large one-story plant. By the time the first companies arrived the heat was so intense that two explosions occurred as the boilers gave way. Adjoining buildings were threatened, but were protected by hose streams. Three firemen were directing a stream of water on a smouldering drum, and as the water struck the container it exploded, throwing flaming cleaning fluid in all directions. The flames enveloped the firemen before they could retreat and they had to be treated for burns on face and hands. The blaze, which was fed by inflammable material, was finally extinguished after two hours of fighting, but not until it had left the building in complete ruins.

SIZING NOZZLE TIPS TO AID CALCULATIONS FOR DISCHARGE

Numbers Bearing a Relationship to the Flow Replace the Old Linear Measurement of Tips

By Horace W. Dawson
Assistant Chief, Fort Lewis, Wash., Fire Department

NOZZLE tips are commonly sized according to their diameters in inches and fractions of inches. In order to arrive at the value of the flow from any particular nozzle, it is necessary to square this diameter, multiply it by a constant factor (29.83), and the flow in gallons for one pound of pressure per square inch is the result. To get the flow for any other pressure, the square root must be extracted from the pressure; the product of this square root and the flow for one pound of pressure being the total flow.

Now, for ordinary field practice it would seem that a simpler method should suffice and would at the same time give firemen a better idea as to the size of nozzle tips in the terms of their flow. If these figures result in errors of not over five per cent, there should be no reason for complaint. Accurate results are, of course, necessary where hydraulic tests are being made for water systems and fire engines, or other places where accuracy is desired.

Ordinarily, at fires, engineers and officers need only know about how much the flow is in order to stay within the capacity of their engines.

Key Numbers for Nozzles

The writer has found that if he can disregard linear measurement of diameters of nozzle tips and give their values in a number which bears a direct relation to the flow, it is much simpler to explain to student firemen. Such a value graphically explains the size of the nozzle.

To this end we have marked all our nozzle tips with the key number for each particular tip. This marking was done on three sides of the barrel of the tip so that the numbers can be read from behind the nozzle.

The value given in each case was the nearest whole number to 29.83 times the diameter squared. This works out as follows:

Diameter in Inches	Key Number or Size
⅞	23
1	30
1⅛	38
1¼	47
1½	67

It will now be seen that if the nearest even square root of the pressure is taken multiplied by the key number or size, a close approximation of the flow is obtained.

Example: Let the nozzle pressure be fifty pounds per square inch, and the nozzle tip size be 38. The nearest even square root of fifty is seven. Seven times 38 is 266 gallons per minute, approximately. (The underwriter's tables give this value as 265 gpm.)

The nozzles are now sized in terms of the flow of water instead of in inches. all that need be remembered when ordering a certain size of tip to be applied, is the approximate flow of water desired at that particular job, and a quick mental calculation will result in the actual size of the tip.

It would appear that an enterprising manufacturer would design nozzle tips with key numbers or sizes calculated in even tenths. He could, of course, mark these numbers on his tips in such a way that they would be readily readable.

"Cotton Row" Endangered

A stubborn fire in the heart of "Cotton Row" in Memphis, Tenn., was the cause of an estimated $100,000 loss. Sixteen pumpers, three aerial trucks, a light truck, and a water tower, which was used for the first time, responded to this three-alarm blaze. About 150 firemen fought the blaze for more than an hour before the fire was under control. However, the department confined the blaze to one building.

Streams were directed from surrounding roofs, and from the ladders and water tower. Chief Klinck of the Memphis Department reports that the water tower and aerials with fixed nozzles did fine work.

Gives Banquet for Firemen

Benjamin M. Ellis, famous spark of Boston, Mass., gave his usual Night-Before-Christmas banquet for the members of three Engine Companies, two Ladder Companies, and one Rescue Squad. Following the dinner, there was a general distribution of gifts.

Chief Weir Dies in Fire

After more than thirty years in the fire service as Chief, G. S. Weir died in flames which destroyed his home in O'Hara Township, Pa. Weir and his wife were awakened early in the morning by the smell of smoke. Weir went downstairs to investigate, and he never returned. His wife leaped to safety out of the second-story window.

G. S. Weir was born in Pittsburgh, Pa. At the time of his death he was Honorary Chief of the Pleasant Valley Volunteers. During his life his main hobby had been fire fighting and fire prevention. He was Honorary President of the Pleasant Valley Firemen's Association, Past-President of the Western Pennsylvania's Firemen's Association, and a member of a number of fraternal organizations.

He is survived by his widow, two brothers, and two sisters.

Night Fire in "Cotton Row", Memphis

A Fireman Watches Burning Stars

Fireman J. P. Williams of the fire department at Madison, Wis., was attracted to the hobby of building telescopes. He first became interested in this hobby about five years ago between answering alarms and putting out fires, rescuing stray cats from treetops, or

Photo courtesy of Paula Birner

Mr. Williams Carefully Grinds to Obtain a Parabolic Mirror

repairing dolls for the Empty Stocking Club. It was an article in a scientific journal according to *Sky Magazine* that first started him off on constructing telescopes.

His first attempt at grinding and polishing a mirror ended without success. After seeking help from other amateurs, he finally succeeded in grinding and polishing one. Since his first success, he has become what one might call a connoisseur on the problems of mirror making.

Fireman Williams tried at one time to carry on his work at the fire station, but charging engines and sudden fire calls made telescope construction discouraging and dangerous. He now works in the basement of his cellar which he keeps cool and damp. He uses a work bench above which there is a roof and roof light, to prevent the dropping of dust and to illuminate the grinding operation.

5 Firemen Plunged Into Basement

Fire of unknown origin in the basement of a four-story building at Yonge and Bloor Streets in Toronto, Ont., caused a loss of $35,000, and caused injury to several firemen.

The building was occupied on the ground floor by a gents' furnishing shop, and above by apartments. No tenants were home during the fire. The blaze was first noticed by an employee of the shop who saw smoke coming from the cellar. The Fire Department alarm was received at 3:08 p.m. and brought two engine companies and one aerial, in charge of a District Chief.

Upon arrival, dense clouds of smoke were coming from the building at the front and rear, and it was almost impossible to enter.

The men donned gas masks. Lines were run into the building from Yonge Street, and also from the lane at the rear. A second alarm was sent at 3:11 p.m., bringing four engine companies, two city service trucks, one salvage truck and auxiliary. It also brought Chief George Sinclair, two District Chiefs, Dr. Hill, Department Surgeon, and emergency cars from gas and electric company.

More lines were run into the building. Portable electric lights were used to penetrate the smoke. After about twenty-five minutes, the ground floor of the gents' furnishing shop collapsed and plunged five firemen into the water-filled basement. The men were rescued by using a small metal ladder placed in the hole. They removed to hospital some who were badly hurt.

Chief George Sinclair was ready to issue an order for the patrons of a theatre a few doors away to leave in case the blaze would spread, but in a half hour the fire was under control. Companies returned to their quarters around 6 pm. Ten 2½-inch lines were used, and later a water pump was used to clear the basement of water. Difficulty to locate the fire was caused by the basement being divided into a number of small wooden rooms.

JOHN KARL LEE.

Charles Buckley Dead

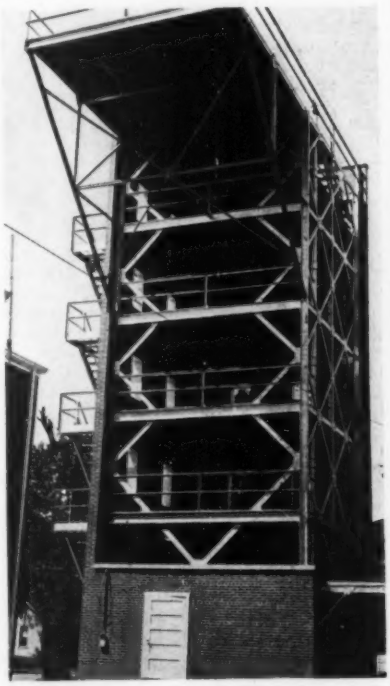
Charles Buckley, well known volunteer fireman of the Mount Vernon, N. Y., Fire Department, died while an inmate of the Firemen's Home at Hudson, N. Y. He had been a member of Engine Company No. 3 for the past thirty-eight years, and was also an officer and past President of that company. He was President of the Hudson Valley Volunteer Firemen's Association; served as trustee of the Firemen's Home, and he had been active in the Westchester County and New York State firemen's associations.

Photo courtesy of Paula Birner

J. P. Williams With One of His Finished Products

Charleston, W. Va., Modernizes

A new fire station and drill tower were recently completed in Charleston, W. Va., at a total cost of around $50,000, through the help of the PWA. The



A View of the Drill Tower Showing the Details of Construction

station is furnished with modern furniture throughout. The drill tower is steel and brick with a smoke room, stand pipe, net, and flood lights for night work.

Three suburban stations have just been completed at a cost of $27,000 each. These buildings are large one-story stations with everything modern inside.

Bids have been submitted to the PWA for consideration for two 750-gallon pumpers.

Boston, Mass., Enumerates Runs

District No. Nine of the Boston Fire Department, which is located in Roxbury, Mass., established what is probably a record for the entire country by responding to 1,650 alarms during the year. District No. 8, Boston, Mass., was second with 1,509 responses. Rescue Company No. 2 had a record of 1,381 runs, which is more than any company in Boston has ever responded to. The last alarm of the old year was at 11:56 p. m. and the first alarm of the new year was at 1:21 a. m. The latter was a long time in arriving, but was followed immediately by a number of others.

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

KEEPING MOTOR APPARATUS BATTERIES FULLY CHARGED

OUT of sight, is the nerve center of the motor fire apparatus. It is the battery. Without it, all the well maintained cylinder units will not function.

Batteries have to be serviced to see that they are properly maintained and that they are fully charged.

There are many devices on the market for charging batteries, some functioning while the battery is in position on the apparatus chassis.

In the box on this page is the problem in full that is discussed in this issue. Because of the many who contributed to this round table, the discussion will be completed in the next issue.

Discussion of the Question

Edward J. Cannon, Chief, Norfolk, Va.: We formerly used the Stall Battery charger, but upon recommendation of the electrical department, we changed to the General Electric Tungar charger and find it very satisfactory.

Our batteries are never removed for recharging as each piece of equipment has an individual charging wire with split plug connection for quick detachment in answering alarms while charging.

W. S. Knight, Chief, Salt Lake City, Utah: We have in service two six-amp. chargers, one permanently fixed at Headquarters Station with a 150-foot lead wire that reaches all batteries in the various apparatus. These batteries are removed only when worn out, arrangements being made to charge them while resting in their proper place in the machines. The other charger is portable and is delivered to the other stations for use when needed. These batteries also remain in place, never being removed except when no longer serviceable.

We have found this arrangement to be very satisfactory and quite efficient.

James Thompson, Jr., Chief, Irvington, N. J.: We take daily voltage and gravity readings of all batteries. This is routine and all findings are entered in an official record ledger.

We do not use trickle chargers. We have a piece of apparatus that responds to approximately 1,400 runs a year. On this rig the drain of sirens, lights and radio is greater than the output of the generator. We compensate for this drain by charging the battery at a low rate (four amps.) double the time that the rig was on the road. We have been doing this for over three years and this system is quite satisfactory.

Batteries are charged in position. Each apparatus is equipped with a pull-out receptacle and plug. We are beginning to install Chargicators on the apparatus. I like the form of constant reading.

G. R. McAlpine, Chief, Oklahoma City, Okla.: We use trickle chargers. We use both the General Electric and Westinghouse Tungar five-ampere chargers and find this type very satisfactory. This charger keeps the batteries up to where there are very few changes necessary. All batteries are checked for connection trouble and water.

Peter Steinkellner, Chief, Milwaukee, Wis.: Batteries are checked and tested after each run and, if needed, a charger is put on right away.

We do use trickle chargers. We use six-ampere rectifiers. They have proven very satisfactory.

Batteries are charged in position, each battery box being wired up for charging.

George E. Renken, Chief, Laredo, Tex.: We keep posted on the general condition of our fire equipment batteries by a rigid daily inspection, when the men change shifts, and weekly by our department mechanics. The department keeps a fair number of replace batteries on hand to keep our fire equipment in service while the original batteries are being charged.

We have a General Electric ac trickle charger at our repair shops capable of charging six batteries at a time.

We have employed this device for over ten years and have found it very satisfactory.

Batteries are taken off their positions in the trucks and are charged at the repair shops. This also helps to wash the battery thoroughly and makes it imperative that the battery box be free from foreign elements which are so harmful.

Francis W. Donnelly, Chief, Lincoln, Neb.: Our batteries are tested every morning by drivers of the apparatus and the test is recorded. When batteries test below 1,200 they are changed and a fully charged battery installed.

We do not use the trickle charger.

Batteries are repaired and charged at department repair shop.

Batteries are removed from the apparatus and taken to the repair shop where they are thoroughly cleaned. Terminals are cleaned and oiled and all needed repairs are made.

L. B. Barnum, Chief, Phoenix, Ariz.: We have charging equipment at each station. Each engineer is responsible for keeping the battery on his truck fully charged.

We use type 1-3 battery chargers, or rectifiers. They have proven satisfactory thus far.

Batteries are not removed from the apparatus, but are charged in position. There is a plug-in socket on the dash board of the truck which is connected to the battery. A long cord connects this socket with the battery charger. In case of a fire call, the cord is simply removed from the socket. By connecting the cord to the plug-in socket and setting the charger at the correct amperage, the battery is very easily and accurately charged.

W. P. Payne, Chief, Spokane, Wash.: The Spokane Fire Department uses the auxiliary charging system with either a bank of lamps or the single bulb charging unit. These units are installed and in operation in all the stations of this department.

Our batteries are all charged in position in the apparatus, and are charged through independent wires from the charging system by means of polarity plugs. These plugs have two distinct types of fingers so that there is no chance of reversing the polarity of the battery in charging. If two or more batteries are to be charged in the same unit or apparatus, each battery is charged separately. If the battery is of the twelve-volt type, wires are spliced so that the six-volt charger takes care of one-half the battery at a time and is controlled by a two-pole switch. This switch is thrown at intervals so that the battery receives its charge on a more or less even rate.

Our system is very satisfactory and is giving this department wonderful service.

Oscar A. Grab, Chief, New Rochelle, N. Y.: The quarters of each engine

HERE IS THE PROBLEM

What methods do you employ for keeping motor apparatus batteries fully charged?

If you use trickle chargers, what type do you employ?

Have you found them satisfactory?

Are batteries removed from apparatus for charging or are they charged in position?

company is with a battery charger of the one or two battery type, which is mounted in cellar and connected to a switch and pilot light on the apparatus floor to show when the charger is in operation. Also from a switch on the apparatus floor, is a polarized cable which is plugged into a polarized plug on the dash of the apparatus and which will pull out when the apparatus leaves quarters.

We use the General Electric Tungar one-bulb rectifier or the one or two-battery type. These chargers have been very satisfactory.

The batteries are charged in place in the apparatus, and a test of each battery is taken every two weeks. If found below a specific gravity or voltage, the battery is brought to the repair shop and checked. If it is found defective, it is discarded. If it checks all right, it is charged on the large charger in the repair shop and then returned to the apparatus.

J. B. Jones, Chief, Joplin, Mo.: In our department, the driver is responsible for the condition of the battery and checks same each day at inspection and warm up period.

We use five-ampere Tungar chargers which have proven very satisfactory.

The batteries are charged in position by means of extension cords from the charger to the truck which have polarized receptacles mounted on the dash. This system prevents reversing polarity and consequent damage to batteries.

J. H. Wohlers, Chief, Charleston, S. C.: All fire apparatus in this department is provided with the best grade storage batteries. Each company is provided with a charger and other equipment needed to determine the condition of the batteries.

Batteries are kept fully charged with battery charger. We use a twelve-volt General Electric Tungar battery charger, operating from 110 ac. We have found this type entirely satisfactory.

Batteries are charged in position direct from the charger through convenient connection under the hood of the apparatus. If an alarm comes in, the connections are removed and the apparatus responds if the alarm is in its district.

The two wires leading from the battery charger are provided with a thumb clamp at one end of each wire. When ready to charge the battery, one thumb clamp is connected to a convenient bolt on engine for ground; the other thumb clamp is connected to a wire leading to the battery and the charge is turned on. These two thumb clamps can be removed immediately.

Joe Carmichael, Chief, Little Rock, Ark.: We do not use trickle chargers. Each station in the Fire Department has one of the handy type 16 chargers installed on the wall of the station with an extension cord to reach the truck. The truck has a socket connected to batteries installed in side of truck. By this arrangement the charger can be disconnected by just pulling the plug out of the socket.

The batteries are charged in position.

R. A. Kelley, Chief, Davenport, Ia.: Pump operators test batteries every day and if found to be not fully charged, a battery charger is connected and the battery brought up to full charge.

A five-ampere Tungar battery charger is used for charging batteries.

Batteries are not removed from apparatus but are charged in position. They are connected to the battery charger by a polarized receptacle and plug, making it very easy to disconnect. This method makes for safety, as the danger of battery gas explosion is removed. As we have had several batteries explode from sparks caused while connecting or disconnecting batteries, using the clamp method of connection, we have placed polarized connections on the outside of all battery boxes.

Edward A. McHugh, Chief, Louisville, Ky.: In our department, each engine and ladder truck house is furnished with a General Electric Tungar battery charger (twelve-volt—sixty-cycle) mounted on the wall with necessary heavy duty reels, extension wire and polarized plugs. All equipment is furnished with receptacles for plugs mounted on the dash board.

Batteries are tested twice weekly, Wednesday and Sundays, and if the battery hydrometer reading is below 1200, the battery chargers are connected for charging such batteries. Batteries are charged while the apparatus is on the track and ready for service. Extra batteries are charged on a shelf when needed; thus all batteries are always "hot."

These chargers are very inexpensive and have well proven their worth since their installation which we started in 1935 and completed within the past two years. By their use, time and expense have been cut to a minimum, charging delay eliminated, and in general, they are very satisfactory.

John H. Monroe, Chief, Savannah, Ga.: Batteries at the stations, with the exception of headquarters, are constantly changed by our electrical department and are put on chargers if the occasion warrants it.

Our new headquarters building which houses one engine, one booster and one truck company and all the chief's automobiles, is equipped with General Electric Tungar trickle chargers. These have proven very satisfactory. Batteries are charged in position.

Luther P. Willis, Chief, Pueblo, Colo.: We use Mallory No. 5535B battery chargers. These are mounted to the wall of the station and plug in on the dash. We have five in use and test batteries every week. As a rule we charge the batteries about two hours each day. We have found that this prolongs the life of our batteries.

This type of charger is invaluable under conditions where the car is not operated sufficiently to keep the battery properly charged, as frequently occurs during winter months.

Charles H. French, Chief, Manchester, N. H.: Batteries are not removed from the machines for charging.

In our Central Station we have a duplex rectifier capable of charging six 12-volt or twelve 6-volt storage batteries. The DC circuit extends the length of the building with outlets in each of the apparatus rooms. It is a series hook-up and the contact fingers in the outlets are normally closed. Each piece of apparatus has a polarized outlet connected with the battery. Connection for charging is made with a cord of necessary length having unlike polarized plugs; one to insert into the outlet on the machine and the other made so that when inserted into the wall outlet, it will separate the contact fingers, make the required connections and admit the battery into the charging circuit. Current flow is regulated by rheostats on the rectifier.

Rectifiers capable of charging one twelve-volt battery are used in the outside stations.

We do not use any trickle chargers.

Frank A. Northcutt, Chief, Covington, Ky.: We employ the General Electric Tungar charging system in all our fire stations and find it very satisfactory. Batteries are charged in position as there is an outlet at the position of each apparatus. All batteries are tested each morning by the driver of each apparatus.

William J. Lutz, Chief, Wilmington, Del.: Batteries are tested twice or three times a week on all apparatus. Reports of readings are forwarded to the office once each week on Monday and the batteries are fully charged on that day. There is no set time to charge batteries but it is the duty of the officers to keep close check on the service and see to it that there are no battery failures.

We use a bulb type charger. This type has proven very satisfactory and has been in use for a period of eighteen years with very little trouble.

Batteries are charged in position. Chargers are set safely away from apparatus to prevent damage. Extensions reach battery boxes and battery clamps are employed.

C. C. Styron, Chief, Atlanta, Ga.: We use a Number 3126530 Tungar charger and have found it very satisfactory.

To keep from moving batteries from apparatus, we install a No. 556 Bryant polarized receptacle in the battery box and a No. 723 Bryant polarized attachment plug on leads from the charger.

George W. Hanen, Chief, New Albany, Ind.: At the first falter of the starter, we proceed to charge the battery. We use a charger which I had made up, which consists of a ¼ horsepower motor which cost me $8 and a Chevrolet generator which cost $6.75. It does the work and is very simple to make. It is mounted on a small platform and can be moved easily by one man.

I think this is good for any city such as ours where money is limited, as there is practically no upkeep to it. I might add that a charger of this type only puts out six volts and a twelve-volt battery has to be charged one side at a time alternating every three or four hours.

THIS DISCUSSION WILL BE CONTINUED

Due to the many chiefs who contributed to this discussion, and the limitation of space, many of the replies have been held over for the next issue.

We leave the battery in the truck when it is being recharged and all that is required when an alarm comes in, is to remove the clips and get going.

G. A. Powers, Chief, Newport News, Va.: We take a reading once a week of the battery in each piece of apparatus, and if it does not show a proper charge, we connect it up and charge it from a charging generator installed in each house for that purpose. Our batteries are charged in position in the apparatus.

Thomas H. Shipman, Chief, New London, Conn.: We test our batteries on Saturday morning of each week. If tests show that the reading is low, they are placed on charge. Each company is furnished with a hydrometer and a charger so that they can check their batteries at any time.

We use the General Electric Tungar charger (sixty cycles, 115 volts).

I have found our chargers very satisfactory, so much so that I have had them installed on overhead reels in two of my new stations.

We charge all our batteries in position. Our fire alarm superintendent connects the batteries to a female polarized plug on the outside of the battery box. As these plugs can only be used one way, there can be no mistake in connecting the charger plug to the battery plug. If an alarm is sounded, it is only necessary to pull out the plug and let go of it. The spring reel on the ceiling takes care of the rest.

Thomas J. Phelan, Chief, Trenton, N. J.: The batteries in our motor apparatus are kept charged by trickle chargers. We employ 110-volt, six-ampere and have always found them satisfactory. The batteries are charged while in position on the apparatus.

M. G. Brown, Chief, Winston-Salem, N. C.: We use the motor generator set (110 volts—¼ h.p. motor) for charging our batteries. We have been using this type for many years and we find that they do the work satisfactorily. We use a plug set for all batteries and never remove them from the truck until they are about two years old. We then replace them with new batteries. We boost our batteries every few days and always keep them up to standard. We never charge a battery over six amperes.

This type motor-generator set is built by the Ohio Electric & Controller Company, Cleveland, Ohio.

Paul P. Heinz, Fire Marshal, New Haven, Conn.: We build and maintain our own batteries, have a charging room and keep a sufficient number of batteries on hand (fully charged) at all times to meet the needs of our equipment.

We have tried the trickle chargers but have found them impractical for a department of our size which has about fifty pieces of apparatus. Under ordinary conditions it is found necessary to change batteries about once a month and in stations where the runs are not so frequent, batteries do not require changing but once in two months. We have also experienced the fact that the life of a battery is much shorter when charged with a trickle charger.

Charles A. Volk, Chief, Norwalk, Conn.: Our methods for keeping motor apparatus batteries fully charged are very simple and yet very effective. A constant and systematic check is all that is necessary. The drivers of each piece of apparatus are instructed to take a reading of their respective truck batteries once every three days. They read the electrolyte rating with a regulation hydrometer and also take a volt meter reading of each cell. The batteries are never allowed to discharge below an acid reading of 1,250. All batteries are kept filled to the proper level and nothing but distilled water is used for replenishment.

We do not use trickle chargers in this department. Every station is equipped with regulation six amperes capacity, 100-volt ac, sixty-cycle chargers. An average four-ampere rate is maintained.

The batteries are never removed from the apparatus when charging. All trucks are equipped with polarized flush type receptacles, and a connecting cord with attached plugs is part of every truck's equipment.

S. T. Porter, Chief, Washington, D. C.: Batteries are recharged at our repair shop by means of a Rochester Constant Potential Battery Motor Generator, 7½-15 volts, 250 amperes, 1,750 revolutions per minute.

Batteries on apparatus are tested every morning. When hydrometer readings of any battery have dropped to 1,225 degrees, the battery is removed and replaced by a fully charged battery.

Earl Swartz, Chief, Harrisburg, Pa.: A local battery concern makes a trip once each month to every fire house in the city. They test all batteries in apparatus. If the battery needs recharging, it is removed and taken to their place of business and a rental battery is installed. This concern has twenty-four hour service and we have found that it is a saving to the city. On these monthly trips, batteries are tested and water put in free of charge.

Frank J. Callahan, Chief, Central Falls, R. I.: We charge our batteries as needed without removing from apparatus. They are checked every morning. We use a General Electric Tungar charged (50/60 cycle).

We have a trickle charger which we use on our hand lights. This operates very satisfactorily.

Edward F. Dahill, Chief, New Bedford, Mass.: We use a motor generator for charging the batteries of four electric aerial trucks and also for batteries of other types of apparatus. For smaller batteries including hand lights, etc., we use portable General Electric Tungar Rectifiers and find them very satisfactory. Batteries are not removed from the apparatus for charging.

Edward T. Rose, Chief, Wheeling, West Va.: We use the Tungar Rectifier plugged into 110 AC with switch in line. The batteries are tested with an hydrometer every morning at eight o'clock. If they are below 1240 degrees specific gravity, the charger is put on until it is brought back to 1280.

We have a card twelve inches square with the words "Charger On" which is placed on the steering wheel of the apparatus so the driver can not pull out without disconnecting the clamps.

Each man is instructed to snap the current off before jerking clamps off the terminals as we have had the battery explode from the arc caused by jerking the clamps off while the current was on. One of our firemen was burned on the face and eyes when he failed, or forgot, to snap off the current.

All batteries are charged while in service on the trucks. We find this a satisfactory arrangement.

Thomas H. Cotter, Chief, Providence, R. I.: All fire apparatus batteries in this department are charged by a local battery manufacturer and servicer. Sufficient spare batteries for the apparatus are kept, fully charged, in the department repair shop and upon notification from company commanders that the gravity reading is under 1175, the repair department changes the batteries, takes them for recharging and returns them to the apparatus.

Battery readings are taken Monday and Thursday immediately after eight a. m. roll-call.

W. P. Weeks, Chief, Battle Creek, Mich.: We have a Tungar charger with twelve-battery capacity wire to convenient outlet at each truck. We can charge one or all at any time.

Our outlets are polarized with short cable to truck and slip joints in plug at truck. This charges batteries without moving them.

New Equipment for Dallas, Ore.

Dallas, Ore., a city of about 3,600 people, recently purchased two units for their volunteer department. One is a 600 gpm pumper with a 150 h.p. motor and the other is a 500 gpm pumper built on a Ford chassis with a Mercury motor. In addition to these new pieces of apparatus, they have a 400 gpm pumper, a small hose rig, and a fully equipped ambulance which answers calls from both in and out of the city.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Good and Bad Conductivity

To the Editor:

How does the word "good" and the word "bad" apply with reference to the subject of conductivity?

What is the relation of pulverized substances in this respect? The relation of oils, etc.? D. A. L.

Answer: Conductivity is the quantity of heat transmitted through a unit thickness of material per unit of area in a unit of time. In the system that is employed in this country, the conductivity is usually expressed in B.t.u. per hour per square foot per inch of thickness.

The terms "good" and "poor" conductors are relative terms. There is no distinct line of demarcation between them. For example, we say that iron is a good conductor of heat whereas wood is a poor conductor. Likewise, air, or other gases, are poor conductors while water, in comparison, is a good conductor.

A granulated or pulverized substance may be considered a poor conductor in comparison to the same material when in solid form. The reason is that the path of travel of heat is not continuous, but broken by air pockets or air spaces (commonly known as interstices).

Below are given in B.t.u. per square foot per inch of thickness per degree F., the conductivity of various materials for a period of one hour. These figures will give you a pretty good idea of how the conductivities of different types of materials compare.

Air	0.1643
Carbon dioxide	0.0964
Petroleum oil	1.0302
Water	4.3530
Aluminum	1,392.96
Brass	754.52
Iron	467.22
Silver	2,919.41
Fire brick	0.81256
Window glass	7.2550
Stone concrete	6.3844
Cinder concrete	2.3506
Rubber	1.0737
Sawdust	0.3482
White pine	0.79
Oak	1.00
Asphalt	4.8
Mineral wool	0.27
Ground cork	0.27
Corkboard	0.31

Pumpers in Tandem

To the Editor:

Some discussion arises as to what is meant by tandem operation.

My version is that with the old type of pumper, with only two discharge outlets, and hydrants quite a distance apart, if more than two lines are needed, the hook-up would be Pumper No. 1 to hydrant and using two lines to fire; Pumper No. 2 would connect from suction side to suction side of Pumper No. 1 and using the water not being used by Pumper No. 1.

Others contend that tandem operation occurs where two pumpers are used and great pressures required; i.e. Pumper No. 1 pumping at 300 pounds; Pumper No. 2 also working at 300 pounds, so that Pumper No. 2 would be able to develop 600 pounds pressure.

Both pumpers mentioned are second size.

Which of the two is the correct interpretation? J. J. S.

Answer: By tandem operation is meant the operation of two pumpers at one point, the discharge of one pumper entering the second pumper, and the second pumper giving approximately the total of the pressures at the two pumps as its discharge pressure.

The purpose of tandem operation is to create high pressure at any particular point in the hose layout.

Where a line or lines of appreciable length are placed between two pumpers, they are then said to be in relay.

Nozzle Pressure

To the Editor:

What is the nozzle pressure, where there is 140 pounds engine pressure pumping through 500 feet of 2½-inch hose with a 1⅛-inch tip and nozzle is 20 feet below discharge gate?

On a centrifugal pump, with the hand throttle set at ten pounds above the desired pressure, is it possible to bring the pump pressure down by the use of the regulating wheel without disturbing the throttle setting? Explain in detail. V. G.

Answer: The method for solving the problem submitted is as follows:

First calculate the engine pressure, taking into account the elevation of the engine above the nozzle.

This elevation is twenty feet, and the pressure which this elevation provides in helping the engine pressure is $20 \times .434$, or 8.68 pounds.

Then the corrected engine pressure (the sum of engine pressure plus the static pressure in the line) is $140 + 8.68$, or 148.68 pounds.

Then solve for nozzle pressure:

$N.P. = E.P. \div (1.1 + KL)$

K is a factor depending upon hose and nozzle diameters, and is, for 2½-inch hose and 1⅛ inch nozzle, .167.

L is the number of fifty-foot lengths in the line, and is equal to $500 \div 50$, or 10.

Then $N.P. = 148.68 \div (1.1 + .167 \times 10)$

$= 148.68 \div (1.1 + 1.67)$

$= 148.68 \div 2.77$

$= 53.68$ pounds, or 53.7 pounds approximately.

Answering your second question, it is possible to bring the pump pressure down by using the regulating wheel without disturbing the throttle setting, particularly where a ratchet throttle is employed.

Discharge from Pumper

To the Editor:

An engine at suction, using 4½-inch suction connection gauge, is six feet above water. The gauge shows eighteen inches of mercury. What will be the gallons per minute if this is a 1,000 gallon pumper?

In the same pumper, if it were not possible to connect to a hydrant due to an obstruction, and a 50-foot length of 2½-inch or 3-inch were used, and the hydrant pressure were approximately 40 pounds, how many streams could be taken from the pumper under these conditions? What would be the gallons per minute discharge from the pumper?

F. A. S.

Answer: The pressure at which the pumper is supposed to deliver 1,000 gallons is not stated, so we will assume it is at the pressure of 120 pounds. We will further assume that the engine is delivering its maximum load at this pressure and capacity.

We must first find the equivalent head to the 18-inch mercury reading on the compound gauge.

To find the pounds per square inch of the mercury reading, we use the following formula:

$$\text{Pounds per square inch} = \frac{\text{inches in mercury} \times 28}{57}$$

The mercury in inches is 18, and therefore the pounds per square inch will be $\frac{18 \times 28}{57} = 8.84$ pounds per square inch.

Lifting water 8.84 pounds is equivalent, from the standpoint of the load on the engine, to raising it above the same height.

Thus the engine is actually delivering the discharge at 128.84 pounds.

To find the discharge from a 1,000-gallon pumper (120 pounds pressure) at 128.84 pounds, we use the following formula.

Discharge at 128.84 pounds $= \frac{1000 \times 120}{128.84}$

$= 120{,}000 \div 128.84$

$= 931$ gallons per minute, which is the discharge from the engine when it is drawing 18 inches of mercury.

Answering your second question, where the hydrant pressure is 40 pounds, and we allow an inlet pressure to the engine of 10 pounds, we have 30 pounds available for overcoming friction loss in the line.

The problem then resolves itself down to finding what flow in a 2½-inch line of hose will give a friction loss of 30 pounds for 50 feet.

The calculations are as follows:

F. L. $= 2Q^2 + Q$ (for 100 feet of 2½-inch)

F. L. $= \frac{1}{2}(2Q^2 + Q)$ (for 50 feet of 2½-inch)

$30 = Q^2 + \frac{1Q}{2}$

$30 + \frac{1}{16} = Q^2 + \frac{1Q}{2} + \frac{1}{16}$ (Completing the square)

$30.0625 = Q^2 + \frac{1Q}{2} + \frac{1}{16}$

$\sqrt{30.0625} = Q + \frac{1}{4}$

$5.483 = Q + \frac{1}{4}$

$= 5.843 - .25$

$= 5.233$

Or gallons per minute $= 523.3$.

If a fifty-foot length of 3-inch hose is employed, you must find the length of 2½-inch hose equivalent to the three-inch. Thus divide by 2.6, the conversion factor for 3-inch to 2½-inch.

50 divided by 2.6 will be equal to 19.23 feet of 2½-inch.

Again assuming that the inlet pressure to the engine is 10 pounds, and that hydrant pressure remains at 40 pounds, we'll have 30 pounds for overcoming friction loss.

Calculations for this problem follow:

F. L. for 100 feet of 2½-inch hose $= 2Q^2 + Q$

F. L. for 19.23 feet $= 0.1923\ (2Q^2 + Q)$

30 pounds $= 0.1923\ (2Q^2 + Q)$

$30 \div 0.1923 = 2Q^2 + Q$

$156 = 2Q^2 + Q$

$78 = Q^2 + \frac{1}{2}Q$

$78 + \frac{1}{16} = Q^2 + \frac{1}{2}Q + \frac{1}{16}$ (Completing the square)

$78.0625 = Q^2 + \frac{1Q}{2} + \frac{1}{16}$

$\sqrt{78.0625} = Q + \frac{1}{4}$ (Taking the square root of each side

$8.835 = Q + \frac{1}{4}$

$8.835 - .25 = Q$

$Q = 8.585$

Gallons per minute $= 858.5$.

Hanna New Milton Chief

After serving many years as Deputy Chief of the Milton, Mass., Fire Department, James F. Hanna became Chief, the early part of January 1940. Appointment of Hanna as Chief followed the resignation of Chief J. H. Holmes, who retired after forty years of fire service. Chief Hanna has risen in the ranks from a callman, and has been a member of the department for thirty-two years.

RAPHAEL A. ELCOCK

New Station Recently Completed at Concord, Cal.

New Station for Concord, Cal.

A new bungalow station has recently been completed at Concord, Cal.

The apparatus room which occupies the center of the building, is equipped with overhead type automatically controlled doors, twelve feet each in width. In the rear of the apparatus room is a manually controlled overhead type door fourteen feet in width and also a pit and workshop for the maintenance of equipment.

To the right of the apparatus room are the office, control room, clubroom, kitchen, shower room, and dormitory with accommodations for eight night men. To the left of the apparatus room, are the living quarters for the Chief.

In the rear of the building are the wash-rack and a three-story drill tower.

A. W. Vargus is Chief of the Department.

New Station for New London, Conn.

The Thomas Engine Co. No. 3, New London Fire Department, New London, Conn., has a new station which apparently has all the comforts of home. The station is a 2½-story Colonial type structure of water struck brick with wood trim. The building contains an apparatus room, a card room, pool room, kitchen, dormitory, shower and toilet rooms, a combined assembly and lounge, and a boiler room. The building is on the same site that the department has occupied for the last forty-five years.

Albany, Ga., Sets New Record

Fire losses in Albany, Ga., were the lowest in the history of the city last year with a per capita loss of slightly less than ten cents. The fire department of that city responded to 193 alarms, ninety-nine fires occurred in buildings with the total loss of $1,967. No person was killed or injured in any fire, completing twenty-nine years of such an honorable record.

The low loss was partially due to the intensive fire prevention campaign that was carried on under Chief Brosnan. Wood shingle roofs were practically eliminated. Chimneys and flues were made safe. Constant inspection by uniformed firemen aided in eliminating heating hazards, the handling of volatile liquids, and hazards in the manufacturing industries.

New Fire Station at New London, Conn.

Correspondence

Refrigerator Compressor Blows Up

To the Editor:

Here is a new one that, to my knowledge, has never happened before in Detroit. Last month the company responded to an alarm for a sulfur dioxide leak in a mechanical refrigerator compressor.

On our arrival we were informed by the caretaker that the compressor had blown up. An investigation verified this and also revealed a stream of hot water issuing from the connection that carried the cooling water for this unit. I was under the impression that the janitor had done a little amateur plumbing and connected up the wrong line to the unit. However, his wife assured me that he had not touched it so I started to look around again. I soon discovered that the hot water tank had become overheated, raising the pressure inside to ninety pounds. This caused hot water to back up through the cold water lines and raised the temperature of the sulfur dioxide to the point where it blew up the compressor.

Yours respectfully,
R. W. Worley, Lieutenant,
Detroit, Mich.

One for Our Readers

To the Editor:

For the past several weeks I have been busy in research trying to find the origin of the term "joker" as used in the parlance of the fire department.

I am of the opinion that the word is a misnomer, inasmuch as I find this sentence in a description of the fire alarm in an encyclopedia: A second signal follows on a YOKER or independent circuit. It is my opinion that in the early days when typewriters were unknown and penmanship of good quality was a rarity, a "y" was mistaken for a "j", hence the word joker instead of yoker.

I have just finished an essay on the Cincinnati Fire Department that is to be included in a book written by our Project entitled, "Cincinnati: A Political History". I would like to have this mystery of the joker cleared up by the time the book comes off the press at the end of the month, using the material as a feature promotion story.

If you can assist me in this, I would appreciate it very much.

Sincerely yours,
Edward J. Donnellon
Ohio Writers Project,
Works Progress Administration,
209 Greenwood Bldg.,
Cincinnati, Ohio.

Rights by Mail Trucks

To the Editor:

In connection with the inquiry about the subject of "Right of Way" which appeared in the October, 1939, Issue of Fire Engineering, I thought that the following, an excerpt from the Motor Vehicle Service Rules and Regulations, would be of interest:

"Postmasters should impress upon employees that their position does not permit of violating speed and traffic regulations, nor to ignore the safety and the rights of others."

Also attention is invited to paragraph thirty-one, on page 103 of the July, 1939, Edition, of the Postal Guide:

"The law prohibits any willful interference with the performance of Postal Service, but such prohibition does not authorize mail carriers to disregard state law or municipal ordinances in relation to the use of public roads, nor authorize them willfully to interfere with the rightful use of public roads by other parties."

While this is shown under the heading of "Rural Carriers," it would seem that it would also apply to other drivers of mail carrying vehicles. This may be of some interest, as it is clear that the P. O. Department would not look with favor on any mail truck driver trying to take the right of way over fire department vehicles responding to an alarm.

Very truly yours,
Charles N. Mason, Jr.
Brookline, Mass.

New Truck Carries Own Water Supply

The Town of Woodbridge, Conn., in common with many other rural and suburban communities, has a problem in regard to water supplies sufficient for fire fighting. There are many places from which water can be drafted, but frequently these sources are a considerable distance from the fire, and time is lost laying a long stretch of hose. Since this town covers an area of nearly twenty square miles, there are a few spots, unfortunately, where the only available water is from small wells, which are soon exhausted by a fire pumper.

Chief George Knowlton, of the Woodbridge Fire Department, had long seen the need of some fairly large, quickly available supply of water to have on hand for any fire in any part of town. He had in mind an apparatus which would carry a sufficient amount of water to hold a bad fire while a long lay of hose was made to a distant supply, or to handle, entirely unaided, a fire which had not too great a start.

Chief Knowlton was aided in the preliminary design of this apparatus by Newton Borgenson and Edward Miner of the Woodbridge F. D. Based on the ideas of these three men, The Sealand Corporation of Bridgeport, Conn., designed and built an apparatus, on a five-ton Federal Chassis, carrying over 1,000 gallons of water in a low rectanglar tank.

On top of this tank is a hose rack holding 1,000 feet of 1½-inch hose, while a booster reel is placed back of the cab, to hold 200 feet of chemical hose. Ladders, a twenty-eight-foot extension and a sixteen-foot roof, are carried overhead in a ladder trough. The pump, a 300 gpm centrifugal, is rigged so that not only can the tank be used as a supply, but independent suction connections make available any convenient supply of water for drafting. Sixty feet of 3½-inch hard suction hose are carried in compartments on either side of the tank, inside the outer wall of the body.

Eastern Chiefs to Meet June 6-8

At the annual meeting of the Board of Directors of the Eastern Association of Fire Chiefs, held in New York City on February 1, June 6, 7 and 8 were selected as the dates for this year's convention, which will be held at the Du Pont Hotel in Wilmington, Del.

After a forenoon trip through the famous Du Pont Gardens on Thursday, June 6, the convention will start its first business session. On Friday evening the delegates will be guests at a buffet supper and on Saturday afternoon they will be taken to see the races at the Delaware Race Track. The balance of the time will be devoted to technical sessions.

Those in attendance at the meeting were: Chief Ross B. Davis, Philadelphia, President; Deputy Chief J. J. T. Waldron, New York, 1st Vice-President; Chief of Salvage Ed. Warr, Baltimore, 2nd Vice-President; Former Chief Chas. E. Clark, Wayne, Pa., Secretary; Chief Wm. Lutz, Wilmington; Chief Charles Greenfield, Arlington Works (Du Pont), Kearney, N. J.; Chief Wm. A. Espy, Salvage Corps, New York City; Fred Sheppard, Fire Engineering, New York.

Chief F. E. McGlauflin Dead

Floyd E. McGlauflin, Chief of the Presque Isle, Me., Fire Department, and President of the Aroostook County Fire Chiefs' Association, died recently. Chief McGlauflin, widely known throughout Aroostook County, was associated with his brother in the insurance business at Presque Isle. His loss will be greatly felt in both the community in which he resided, and in the county.

500-Gallon Quadruple Combination for Undercliffe, Pa.

The Buffalo Fire Appliance Corporation has delivered a 500-gallon quadruple combination to Undercliffe, Shaller Township, Pa. The pumper carries a 500-gallon, two-stage, centrifugal pump, a 150-gallon booster tank, 1,000 feet of hose, and three banks of ladder.

WHAT'S BURNING

THE following list includes fires of $50,000 loss and over in the United States and Canada, for the month of January, 1940. These figures, compiled from the telegraphic reports, are based on estimates made at the time, and are subject to later investigations and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Month Ending January 31	Loss in Thousands of Dollars
Wilmington, Del.—Plant of Tri-State Service, Inc., damaged	100
Villanova, Pa.—Dwelling on estate of J. Beaver White, damaged	80
Delta, Colo.—Hardware store, destroyed	50
Skowhegan, Maine—Building housing machine shop and Skowhegan Boat Co., destroyed	65
Marion, Ohio—Processing plant of Old Fort Mills, Inc., destroyed	125
Williamsport, Pa. — Williamsport Planing Mill and seven dwellings, destroyed	215
Eagle Bend, Minn.—School house and gymnasium addition, damaged	90
Naugatuck, Conn.—Central House rooming establishment and building, destroyed	50
Natchez, Miss.—Mansion owned by Kingsley Swan, destroyed	85
Canton, Ohio—Business building and adjoining stores, damaged	50
Sulphur Springs, Ark.—Hall and main academy building of John Brown College, destroyed	80
Southboro, Mass.—Plant of West Construction Co., damaged	50
Pittsfield, Mass.—Capital Theatre and adjoining apartment houses, destroyed	800
Boston, Mass.—Business building on Haymarket Square, damaged	50
Kansas City, Mo.—Kansas City Southern Railroad freight yard, damaged	80
Omaha, Neb.—Henshaw Hotel and adjoining building, damaged	185
Fayetteville, Ark.—Two business buildings, owned by E. A. Budd, destroyed	80
Bristol, Conn.—Bristol Theatre, destroyed	50
Southboro, Mass.—Machine shop of Shaft 2, Metropolitan water project destroyed	65
Lamar, Mo.—Ford Agency building, cars and trucks, destroyed	200
Pittston, Pa.—Church destroyed, adjoining buildings damaged	50
Redding, Calif.—Business block damaged	200
Atlanta, Ga.—Clothing shop and pawn shop, damaged	50
Wichita, Kansas—Paper plant destroyed and grocery co. damaged	50
Owensboro, Ky.—Paint store destroyed	70
Los Angeles, Calif.—Oil well and top well of Ohio Oil Co., destroyed	165
Chicago, Ill.—Warehouse and seventy-five carloads of potatoes, destroyed	80
Decatur, Ill.—Building housing Flint-Easton Drug Mfg. Co., destroyed	125
Louisville, Ky.—Owensboro Paint and Glass Co. store destroyed	70
Woonsocket, R. I.—Globe building destroyed	65
Baldwin, La.—Sugar refinery, destroyed	165
Friend, Neb.—School, destroyed	55
Brookville, L. I., N. Y.—Dwelling of J. C. Bell, destroyed	65
Weston, W. Va.—Flooring plant of Westwood Lumber and Mfg. Co., destroyed	165
Moncton, N. B.—Furniture exchange and adjoining building, destroyed	50
Calicorock, Ark.—Business building and warehouse destroyed	50
Johnstown, Colo.—Grain elevator of Colo. Milling and Elevator Co., destroyed	50
Pittsburg, Kansas—Kansas City Southern Railroad shops, damaged	200
Grand Haven, Mich.—Carl Berg garage and sixty-five automobiles destroyed	125
Buffalo, N. Y.—New York Central Railroad freight house, damaged	50
East Peoria, Ill.—Blue Bird Hotel and adjoining dwellings, destroyed	80
Kansas City, Mo.—Armour Troost building, destroyed	125
Paterson, N. J.—Anchor Place Dye Works, damaged	50
Meyersdale, Pa.—Business buildings, destroyed and damaged	50
Portage La Prairie, Man.—Business block, destroyed	125
Phoenix, Ariz.—Offices and repair shops of Ariz. Tractor and Equipment Co. destroyed	50
Atlanta, Ga.—Twelve business houses, destroyed	80
Kansas City, Kansas—Kansas City Linolith Co. plant, damaged	50
Quincy, Mass.—Coolidge building, damaged	80
Winona, Miss.—Aponaug Cotton Mill, destroyed	165
St. Louis, Mo.—Business building and adjoining buildings, destroyed	165
North Baltimore, Ohio—Methodist Church, destroyed	50
Cincinnati, Ohio—Central Christian Church, damaged	65
Fairfax, Okla.—Block of business stores, destroyed	50
Minneraville, Pa.—Dwellings destroyed	125
Marion, S. C.—Department store and drug store, owner J. C. Gasque, damaged	50
Fredericksburg, Va.—Building housing Bell Bros. Furniture Co., damaged	50
Mallory, W. Va.—Tipple serving two mines of Mallory Coal Co., destroyed	165
Milwaukee, Wis.—Warehouse, destroyed	80
Windsor, Ont.—Warehouse, occupied by paint wholesalers, destroyed	165
Gardner, Maine—Storage house owned by J. R. Cianchette & Co., destroyed	80
Faribault, Minn.—Clothing store, destroyed and adjoining buildings damaged	50
Columbus, Miss.—Four-story building and seven business houses, destroyed	290
Childress, Texas—Junior High School, destroyed	80
Marshall, Texas—Marshall Compress Co., damaged	125
Troy, Ala.—W. L. Thompson and Sons, warehouse, destroyed	65
Rising Sun, Md.—Garage owned by Harry Dinsmore, destroyed	50
Springfield, Mass. — Kimball Department store and Lussier building, destroyed adjoining buildings damaged	125
Fitchburg, Mass.—Business block, destroyed	50
Roselle, N. J.—First Baptist Church destroyed	50
Vineland, N. J.—Business property damaged	100
Lawrenceville, Pa. — Plant of Pittsburgh Crushed Steel Co., destroyed	125
Knoxville, Tenn.—Whse. and office of Armout & Co., destroyed	50
Shreveport, La.—Walter George's residence	65
Cumberland, Md.—Business property	165
Memphis, Tenn.—Plant of Selma Soap Co., destroyed	60
Shinnston, W. Va.—REC Theatre building destroyed	50
New Britain, Conn.—Birnbaum Furniture Co. bldg., destroyed	80
Augusta, Ga.—Kress dept. store in downtown section	250
Dubuque, Ia.—Leiser's Gardens, a suburban cafe	50
Dallastown, Pa.—Glatfelter store and adj. apartments	65
Philadelphia, Pa.—Grocery whse. of Samuel Brenner & Co.	80
Glasgow, Ky. — Powell-Gillenwater bldg., damaged	80
Vinita, Okla.—Tressler Motor Co., and adj. residence	50
Sycamore, Ohio—School building destroyed	90
Passaic, N. J.—William Willheim Dye Works destroyed	65
Wilkertown, N. C.—Main bldg. of Wilkertown Chair Co., destroyed	50
Olyphant, Pa.—Sullum dept. store damaged	50
Chattanooga, Tenn.—Business bldg. at Fourth, Broad & Chestnut Sts.	65
Woburn, Mass.—Property of Cummings Leather Co. and other bldgs.	50
St. Francois de Montnagny, Que.—Business and residential property	65

Slide to Safety

Twelve men luckily escaped death and injury when a dust explosion wrecked the upper floors of the municipal elevator in Houston, Tex. The men reached safety by means of a Potter slide fire escape that had been installed on the side of the building.

Stratford Has Run of Grass Fires

The town of Stratford, Conn., reports that during a recent fifteen-day period, there were sixty calls to extinguish grass fires that had gotten out of control.

Bids have been invited for a 750-gallon quadruple pumper. This plan is under discussion before the Board of Finance, and it is expected to go through at any time.

Long Beach Submits Report

The Department of Safety of Long Beach, Cal., has submitted the thirty-seventh annual report of the Division of Fire, setting forth the activities of the bureaus which comprise the Division for the year ending June 1939.

Included in this report are reports of the Bureau of Fire, Bureau of Fire Prevention, Bureau of Fire Alarm, the Bureau of Maintenance and Instruction.

The second section is on the Department Inventory. This section contains a revaluation of apparatus, hose and tarpaulins; a recapitulation of assets (including buildings and land); and expenditures of the fiscal year. Section Three contains a statistical review of interesting facts about the city of Long Beach.

Accident Results in Fire

Near Coatesville, Pa., an accident occurred when a general carrier truck attempted to pass a gas trailer truck going down a grade and "jackknifed" into the middle of the gasoline truck. Although a fire resulted, there was no explosion. The fire was allowed to burn itself almost out, and the balance was extinguished with fog nozzles.

Seven fire companies were called to the scene, but did not approach the blaze because of the fear of an explosion. There was no great amount of water available for a distance of one mile.

Net Result After a Gasoline Truck Was Involved in an Accident

BALTIMORE FIREMEN KEPT BUSY BY TWO MULTI-ALARM BLAZES

165 Guests Escape From 5-Story Frame Hotel in Center of City—4-Alarm Fire Sweeps Row of Frame Houses

By Otis Smith

A NEAR-disaster in a Baltimore, Md., hotel was narrowly averted by the discovery of a second fire in the building. Scene of the fire was the Hotel Milner, an ancient five-story mill construction building in the center of the city.

Early on the morning of January 5, the elevator boy was called to investigate smoke on the fourth floor. He was unable to find any fire, but aroused the guests anyway. At the same time the Fire Department was notified. It was discovered that a mattress had been on fire in a third floor room, but that it had been extinguished.

A Lieutenant opened the room window to throw the mattress into the yard for further inspection. As he looked out, he saw flames shooting from a basement window. Another alarm was sent in at once. Meanwhile, the crew of No. 16 Truck worked to clear the hotel. Many guests had thought the fire alarm to be for a drill (at 3 in the morning!) and did not pay any attention to it.

Pompier Ladders Used

When the seven first alarm companies arrived, they found people on the window sills of the fifth floor. Pompier ladders and life belts were called in use, as the seriousness of the situation would not permit time to raise 35-foot ladders and aerial ladders. Meanwhile, other companies got into the building and attacked the fire. They found the flames rising rapidly in 18-inch voids around the stairwell. Four companies finally managed to cut the fire off at the fourth floor.

Chief Howard Travers turned out on the third alarm and arrived at the fire four minutes later. On his arrival, he found that the building had been cleared of the 165 occupants, twenty of whom were rescued by ladders and life-belts.

According to Chief Travers, the building was saved by the fact that the flames were cut off before they entered the fifth floor and the mansard roof. He praised the good work of the rescue crews in clearing the hotel of all occupants without loss of life, and the good work of the four companies who managed to stop the fire before it spread to the top floor.

Suspicion was aroused by the fact that there were two fires in the building. It was finally established that the basement fire was caused by defective wiring.

About sixteen hours before the hotel fire, another 4-alarm fire swept through eighteen frame row houses in another part of Baltimore. It was the old story of no fire stops and an open cock loft extending over all eighteen houses.

This fire started when someone attempted to thaw a water pipe by building a fire under it. Flames entered the partition and shot to the roof. This building was at the lower end of the row, and the cock loft acted as a flue. Houses near the origin of the fire were badly damaged. Use of heavy lines and a turret pipe drove the flames higher as they swept up the row. The fire row is located just a few feet from several huge frame buildings of the Baltimore Abattoir. As luck would have it, the wind blew the fire straight along the row of homes, leaving the meat plants untouched.

Minneapolis Experiences Worst Fire in Years

A cigarette thrown into a garbage chute was believed to be the cause of the Marlborough Hotel fire in Minneapolis, Minn. This fire was second to none in the number of deaths in Minneapolis department history.

The first alarm was turned in at 5:53 a. m., and within seven minutes, three more alarms were sent in. When the first units arrived, the building was said to be a mass of flames. One of the first acts of the firemen was to raise ladders to the various floors where there were still victims crying for help. Many could not wait for help to arrive, and they jumped to the ground. Some received critical injuries from the fall, while others died from it.

By the time that streams of water were playing on the blaze, the flames appeared to be everywhere. The water pouring into the burning structure froze almost as rapidly as it fell.

The Marlborough Hotel, a wood structure with brick veneer, was built about forty-five years ago. Surviving occupants of the hotel stated that they heard an explosion which was believed to have come from the garbage chute. Firemen investigating the fire said there may have been a smouldering fire in the chute. When the explosion occurred, the heat had become so intense that it blew the chute out and spread flames in all directions. The loss was estimated at $60,000.

Nassau County Bans Fireworks

In December 1939, the Board of Supervisors of Nassau County, N. Y., adopted a Fireworks Ordinance which prohibits the sale, transportation, manufacture, storing or the use of fireworks without a written permit.

A permit will be issued to a properly qualified person, firm or corporation for a display on a specific date provided that the display is to be handled by an experienced pyrotechnician in an open place; that the applicant will observe regulations that may be deemed necessary properly to safeguard life and property; and that a bond must be posted. Violation of this ordinance is subject to a fine or imprisonment or both.

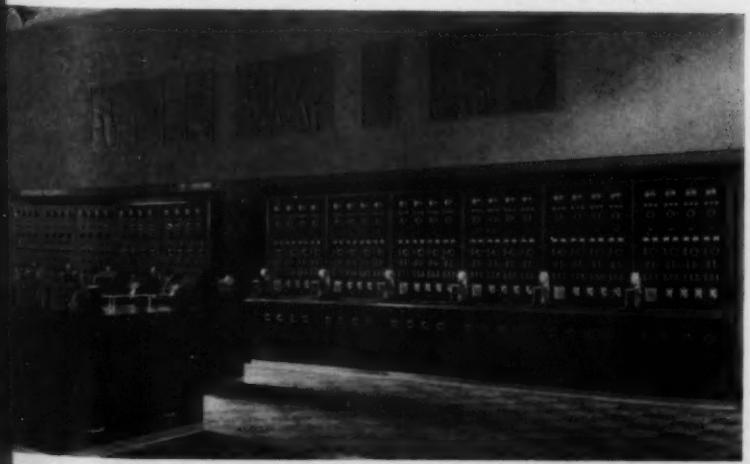
New Appointments Made at Syracuse

Appointment of nine new Captains and seventeen new Lieutenants to fill the vacancies in the ranks of the Company officers in the Syracuse, N. Y., Fire Department has been announced by Chief E. W. Gieselman. These appointments became effective during the month of January.

Four officers of the fire department recently observed the fortieth and forty-first anniversaries of their appointments as members of the department. Among these officers were Chief Gieselman and Acting First Assistant Chief Philip N. Eckel.

Ice-Covered Ruins of the Marlborough Hotel

Central office headquarters of the new fire alarm signaling system, Cincinnati, Ohio.



Two sections of the box-line circuit boards, with monitor register pedestal in left foreground.

. . . by new, split-second fire alarm system

To safeguard the City of Cincinnati, the nation's swiftest, most modern fire signaling system is now being completed. It includes a newly equipped central headquarters station, 72 box circuits, 12 alarm circuits, and 15 split-second Teletype alarm circuits.

The most modern of Horni tape indicating register equipment in central headquarters and engine houses provides unexcelled dependability, new convenience, new safeguards against error or delay. Then in addition, each of the city's 36 fire stations will be served by a high-speed Teletype printer. *Within 8 seconds* after the automatic transmitter goes into action, engine house personnel know the location of the fire. *Within 15 seconds,* written orders (a duplicate copy of the typewritten alarm) are ready to be taken along as the equipment rolls.

Contracts for furnishing and installing central office equipment, Teletype equipment, current supply control apparatus and accessories and for furnishing underground cable for this outstanding job were placed with GRAYBAR, and GRAYBAR specialists assisted in planning and supervising the job to assure trustworthy performance.

If your own fire alarm signaling system requires extension, modernization or replacement . . . why not let a GRAYBAR signaling specialist make a check-up?

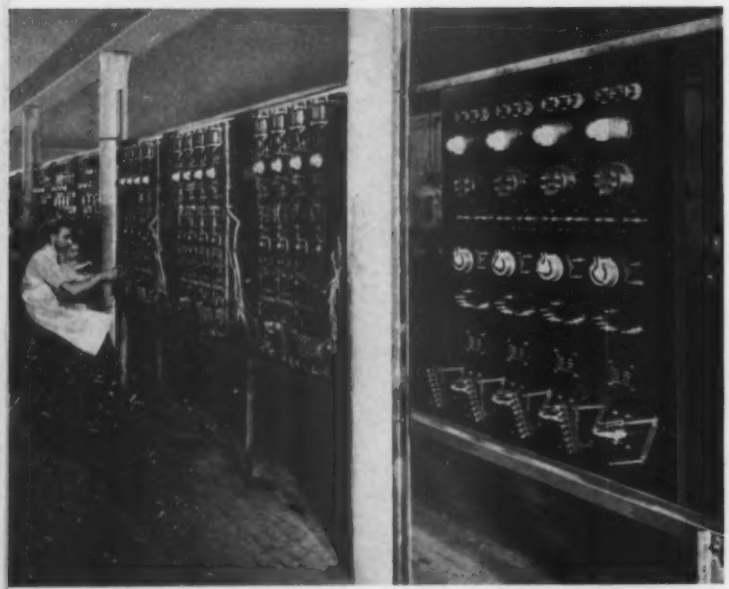
PUBLIC SAFETY EQUIPMENT

GraybaR QUALITY SINCE 1869 *Everything Electrical* GraybaR ELECTRIC COMPANY

Switchboard panels for the central office headquarters of Cincinnati's new fire alarm system shown during construction in the modern plant of the Horni Signal Manufacturing Corporation.

Horni GIVES CINCINNATI

ALERT, TRUSTWORTHY PROTECTION



Wiring and assembly work here being carried out on switchboards for Cincinnati illustrates Horni's facilities for rapid and competent construction of signal systems of this magnitude.

The basic "nerve-center" of Cincinnati's new fire alarm signaling system is of modern design.

Switchboard panels of ebony asbestos are mounted in handsome walnut finished furniture steel cabinets. Exposed surfaces of switchboard equipment are satin finish chromium plate. » » » Panel design and wiring reflect the proven dependability of Horni construction. » » » The Horni Signal Manufacturing Corporation, in conjunction with GRAYBAR engineering specialists, is prepared to design, engineer and construct all types of fire alarm and traffic signaling systems.

The combination of the manufacture of fire alarm and traffic signaling systems enables the Horni Company to provide emergency traffic signaling and warning equipment for fire department use.

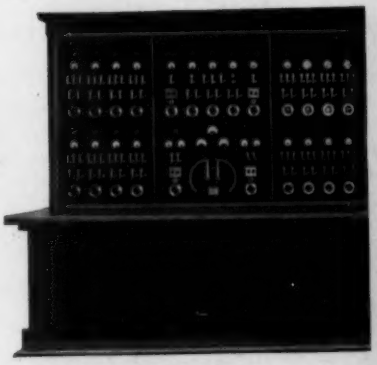
PUBLIC SAFETY EQUIPMENT

GraybaR QUALITY SINCE 1849 *Everything Electrical* GraybaR ELECTRIC COMPANY

Cincinnati transmits fire alarms by TELETYPE

CENTRAL OFFICE EQUIPMENT:
Teletype sending printer, at left of counter, transmits general typewritten messages by wire, at rate of 60 words a minute—fire alarm transmitter, at extreme right, sends alarm designation, 4 digit box number and time of day.

FIRE STATION RECEIVER:
Cabinet houses receiving printer, tape winder, batteries, charger, control and supervisory equipment. Above is a typical Teletype alarm tape (actual size). Transmission time is only 10 seconds.



CONTROL BOARD:
Arranged for 15 Teletype alarm circuits.

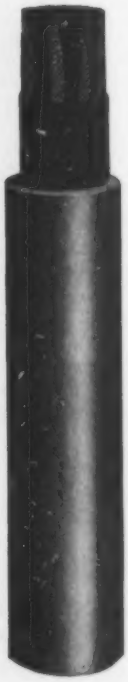
TELETYPE
REG U S PAT OFF
FIRE DEPARTMENT COMMUNICATION SYSTEMS

CINCINNATI chose Teletype fire alarm equipment because it is fast, accurate and dependable. It transmits typewritten alarms and supplementary messages at high speed from central office to all fire stations. Teletype fire alarm equipment can be provided to meet your particular needs. For full information, ask your nearest Graybar office for Circular 3391—or write to Graybar Electric Co., Graybar Building, New York, N. Y.

PUBLIC SAFETY EQUIPMENT

GraybaR QUALITY SINCE 1869
Distributed and guaranteed by
GraybaR ELECTRIC COMPANY

SYMBOLS of SAFETY



The problem of laying out such a complicated and comprehensive fire alarm system as that recently completed in Cincinnati was tremendous. However, the Design and Specification Engineers through their untiring efforts and engineering skill finally achieved a system that can well be the envy of any large city in this country.

Simplex is proud to have furnished Simplex-LATOX Cables for this new and modern fire alarm system. We are happy to have been associated with such an important and far-reaching safety program and with the able engineers who brought this new Cincinnati fire alarm system to successful completion.

Simplex-LATOX Fire Alarm Signal Cables can be depended upon to do their part in furnishing dependable, trouble-free service.

SIMPLEX WIRE & CABLE COMPANY

79 SIDNEY STREET **CAMBRIDGE, MASSACHUSETTS**

PUBLIC SAFETY EQUIPMENT

GraybaR QUALITY 1869 *Everything Electrical* GraybaR ELECTRIC COMPANY

Smoking in Theatres Limited

The Administrative Code of the City of New York, relating to the prohibition against smoking in theatres, opera houses, or portions of buildings used for theatrical or operatic purposes, was amended by adding a new section to the code.

The new section makes it unlawful for any person to smoke, or carry a lighted pipe, cigar, cigarette, or match, or use any spark, flame, or fire producing device in theatres, opera houses, or buildings used for theatrical or operatic purposes. The rooms or locations that were exempt from this prohibition are lobbies and designated smoking and rest rooms. Loges, boxes, mezzanines or balconies are also exempt provided that the floor covering is flameproofed, and provided further that suitable containers or receptacles are placed in accessible positions for use.

Two Injured When Ladder Breaks

Two men dropped to the ground when the ladder on which they were working snapped, during a fire in West Memphis, Tenn. As a result, each man suffered a broken leg. One of the victims is shown on the ground, being assisted by a fellow fireman.

Indiana Fire Chiefs Convene

The Indiana Fire Chiefs Association held its largest and most successful state convention at Terre Haute, Ind., early last fall. The registration exceeded all previous records while the total attendance was about 385.

V. C. Stanley, President and General Manager of the Gamewell Company, was presented with a gold medal and a life membership in the association by Clem Smith, Indiana's most able fire marshal. Mr. Smith also conducted an interesting and educational round table discussion with all chiefs in attendance. Chief R. E. Mottesheard, retiring President of the International Fire Chiefs Association was a guest speaker.

The convention activities were so well planned by Frank L. Orr, that he was asked to act as the Convention Business Manager again next year at Muncie, Ind. Chief Archie McCabe, who has served as Secretary of the association for the past twelve years, will be next year's convention host.

Chief Boyle Dies While on Sick Leave

Chief Roger Boyle of Jersey City, N. J., died recently in Miami, Fla., where he had been on sick leave.

Chief Boyle was born in New York City, but later moved to Jersey City. In 1892 he became a member of the Jersey City Fire Department, and six years later he became captain. In 1915 he was promoted to Deputy Chief, and then to Chief the same day.

Chief Boyle is survived by two brothers.

Chief Ross B. Davis to be Honored

On March 12, at the Benjamin Franklin Hotel in Philadelphia, Pa., Chief Ross B. Davis, of the Philadelphia Fire Department, will receive the annual award of the Greeters of America, Philadelphia Chapter No. 45, as the man who has done most for his city during the past year.

Presentation will be made on that date at a banquet in the Benjamin Franklin Hotel tendered in honor of Chief Davis.

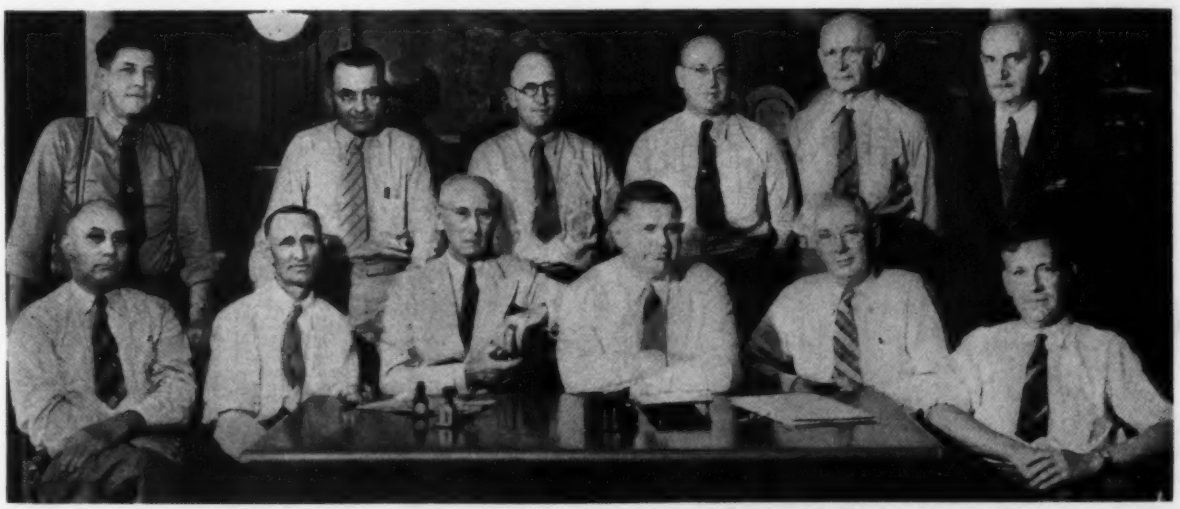
The Greeters of America is a national organization of hotel managers.

Telegrams of congratulation from friends of Chief Davis may be sent to him in care of Greeters of America, Hotel Benjamin Franklin, Philadelphia, Pa., and these will be presented at the banquet.

Chief Cureton Retires

The first of 1940 saw the retirement of E. E. Cureton, Chief of the Fire Department, Owensboro, Ky. For the past thirty years, Chief Cureton has devoted his time and effort toward fire protection and fire prevention.

Although retiring from active service, Chief Cureton will remain subject to the call of his successor for consultation and advice on questions that pertain to fire fighting and fire prevention.



In Attendance at the Indiana Fire Chiefs Convention

Seated, left to right: Ralph C. Dinkel, Second Vice-President, Terre Haute; George Rosenberger, Director, Alexandria; Frank C. Clem, Past President and Director, Anderson; Clem Smith, State Fire Marshal; Archie McCabe, Secretary, Muncie; R. F. Gammons, President, Kokomo. Standing, left to right: John E. Feiock, Retiring Vice-President, New Albany; Rollie Smith, Secretary, Anderson; William F. Koerner, Director, Lafayette; Albert W. Rowe, Retiring President and Chairman of the Board of Directors, Terre Haute; John C. Stahlhut, Treasurer, Fort Wayne; Frank L. Orr, Editor, Fire Chief Magazine and Convention Business Manager.

I.A.F.C. CONFERENCE AT SPOKANE TO BE HELD AUGUST 5 TO 8

Board of Directors in Session in New York Lays Plans for Big Meeting

AT THE annual meeting of the Board of Directors of the International Association of Fire Chiefs, held at the Hotel Pennsylvania, New York City, during the week of January 29th, dates for the Spokane Conference were set at August 5 to 8, with headquarters at the Davenport Hotel.

The Educational Committee, meeting at the same time as the Board of Directors, formulated plans for carrying out the Educational Program for the coming year. An extensive program is planned, and a number of publications which will be of vital interest to the fire service are promised for the near future. The Board of Directors created the office of Managing Director of the Association which will be filled by some outstanding fire chief who has had wide experience in the educational field. This is to get a full-time job.

During the Board of Directors meeting, the Committee on Revision of Constitution and By-Laws held several sessions and brought this work near to completion.

Those attending the meeting included: Chief Ray Tiller, Waterloo, Ia., President; Chief W. H. Palmer, Charlotte, N. C., First Vice-President; Chief W. R. Williams, Fresno, Cal., Second Vice-President; Ex-Chief James J. Mulcahey, Yonkers, N. Y., Secretary-Treasurer; Jay W. Stevens, San Francisco, Cal., Executive Secretary; Fred Shepperd, Headquarters Manager; Gifford T. Cook, Asst. Manager; I. H. Case, Publicity Manager; Chief Daniel B. Tierney, Arlington, Mass., Director; Chief Ross B. Davis, Philadelphia, Pa., Director; Chief Frank W. Bennett, Durham, N. C., Director; Chief Peter Steinkellner, Milwaukee, Wis., Director; Chief Art J. Baker, Lewistown, Mont., Director; Chief Roy E. Mottesheard, Dearborn, Mich., Director-at-Large; Chief Ralph J. Scott, Los Angeles, Cal., Chairman of the Educational Committee; Chief D. W. Brosnan, Albany, Ga., Member Educational Committee; Chief Arthur Olsen, Omaha, Neb., Educational Committee; Chief Charles A. McGinley, East Orange, N. J., Educational Committee; Chief Selden R. Allen, Brookline, Mass., Educational Committee; Ex-Chief Charles E. Clark, Wayne, Pa., Educational Committee; Chief Roscoe A. Foster, Portsmouth Navy Yard, Portsmouth, Va., Member of Committee on War Emergencies; Chief John J. Brennan, Pelham Manor, N. Y., Member of Committee on Revision of the Constitution and By-Laws; Chief W. P. Payne, Spokane, Wash., Convention Host and Chief James T. Keegan, Salvage Corps, Newark, N. J.

Fire Conference Held in Worcester

The program of the annual Fire Fighting Conference held in Worcester, Mass., on January 5, in the Municipal Auditorium Building, was as follows: "Water Supply", by Arthur D. Weston, Chief Engineer, Massachusetts State Department of Health; "Fire Gases", by George Ferguson, of the Pyrene Company; a film entitled "Then Came July 5", showing fireworks hazards; "The Big Mill in Our Town—What It Means to the Community", by Frank V. Bistrup, of the Associated Industries of Massachusetts; "Fire at the Mill—Prevention and Extinguishment", discussion by Chiefs John L. Casey, Abington; William C. Blois, Westboro, and Ralph White, Auburn; and "What the Mill Fire Department Can Do", by William McWhirter, Manager of the West Warren Industries and chief of the mill fire department there.

HARRY BELKNAP.

I.A.F.C. Officers, Directors and Guests Have Lunch at the Huron Club, New York, as Guests of American District Telegraph Co.

Col. Arthur F. Townsend Dies

Col. Arthur Farragut Townsend, Chairman of the Board of Raybestos-Manhattan, Inc., and General Manager of the Manhattan Rubber Manufacturing Division, Passaic, N. J., died recently at his residence, at the age of seventy-four.

The Late Col. A. F. Townsend

Col. Townsend was born in 1865 in Boston, Mass., and graduated from Massachusetts Institute of Technology in 1884. He started off as a shipping clerk with the New York Belting and Packing Company. After nine years with that company he had worked up to Assistant Manager. In 1893 he helped organize the Manhattan Rubber Manufacturing Company. He served this Company as Secretary, Vice-President, and President—the latter office he held from 1903 to 1929.

A New Book for Firemen

The College Book Company, of Columbus, Ohio, has just announced "The Fireman's Textbook," a new 336-page book of "False and True" and "Completion Statement" types of questions and answers for fire department members. The book is authored by Captain Ralph W. Cassell and Fireman Rudolph P. Pritsel of the Columbus Fire Department.

Over 5,000 of these questions and answers are included in the book, which is made up of six chapters. Chapter 1 consists of 2,800 "False and True" questions in general fire fighting; Chapter 2 contains 1,000 "Completion Statement" questions; Chapter 3, 510 "False and True" questions on First Aid; Chapter 4, 260 "Completion Statement" questions on First Aid; Chapter 5, 155 "False and True" questions on Hydraulics; Chapter 6, 280 "Completion Statement" questions on Hydraulics.

Answers to all questions are included.

The book sells for $3.50.

The book is attractively bound in cloth, and the typography is designed for easy reading.

Among the Fire Fans

By Otis Smith

TWO excellent responses were received to the plea for information regarding the Maltese Cross. The first is from Lieut. Charles E. Bledsoe, Topeka, Kans. Lieut. Bledsoe writes that the Maltese Cross has been with us since about the year 1019 A. D. It grew out of an Order formed during and following the Crusades in Europe and Asia. The Knights of St. John were driven to the island of Malta, where they exist to this day. It is considered a distinction to have the privilege of wearing its emblem, the cross of Malta, commonly known as the Maltese Cross.

George R. Ronald, Local Secretary of the St. John Ambulance Association, Prince Albert, Saskatchewan, also sent in a similiar reply. He adds that the Knights of St. John were allowed to establish in England at St. Johns Gate, London, where they have been ever since. Mr. Ronald cautions that his data constitute historical threads, and are not absolute fact. This column is willing to be corrected, if need be.

Vincent Bolger, 100 Richmond St., obliged by giving the following information on the Boston Sparks Association. The group has adopted a policy of serving coffee and doughnuts at all multiple alarms. Since the first of this year, the association has supplied the firemen with over 120 gallons of coffee and over ninety dozen doughnuts. Due to the extreme cold weather, Boston has been fighting seventeen multiple alarm fires since January 1.

The association makes a practice of waiting until instructions are received from the Chief in charge of the fire before distributing any coffee, in order not to impede the operations at the fire until it has been placed under control.

Praise has been showered on the Sparks, not only for the service they are rendering, but for the high quality of the coffee. Supplies are obtained from the commissary of a large chain lunch company. This company furnishes the coffee and doughnuts in any amount required, and at any hour of the day or night. The Sparks recently provided coffee to the members of the Quincy Fire Department, when that department was visited by a five-alarm and a four-alarm fire within the same day.

The writer would like to learn the name of the author of a book supposed to have been issued by the Home Insurance Company of New York to fire officials. "Stub" Chrissinger, 2214 Blaisdell Ave., Minneapolis, Minn., handed me an 1895 patent paper, with instructions to forward it to the unknown author. It seems that this author collects old patent papers having to do with fire fighting. Mr. Chrissinger's patent paper is on the automatic sprinkling system. Perhaps some reader has seen the book in question. If so, kindly communicate with this column.

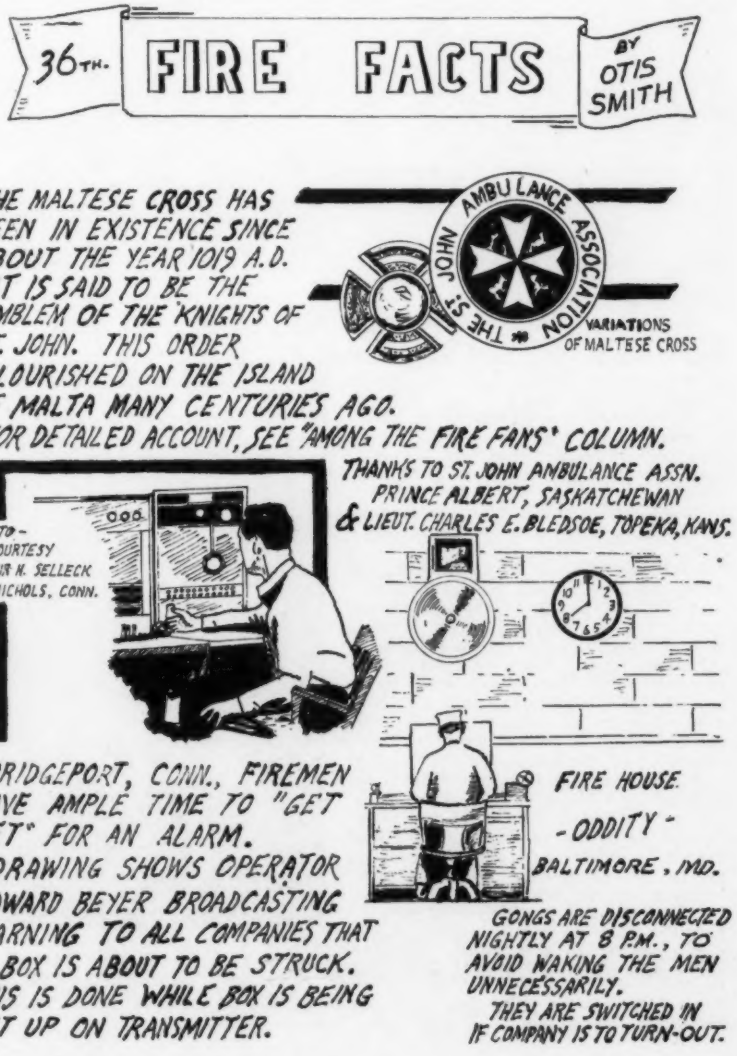
Box 35, Minneapolis, did great work at the disastrous hotel fire there on January 4. Chief Chrissinger was notified of the fire at 5:55 a. m., and rapidly called his crew into action. They arrived with an initial supply of three gallons of coffee and fifteen-dozen doughnuts. These were turned over at once to the fire survivors. After the fire was under control, the firemen were served with coffee and doughnuts. Box 35 members remained on the scene until 4:30 p. m., and served twenty gallons of coffee and twenty-five-dozen doughnuts. Meanwhile, other members cooperated with the Red Cross in giving emergency aid to the persons driven from the hotel fire. By the way, we note that "Stub" Chrissinger is a parachute rigger and instructor.

George Wellington, President of the Fire Commission at Bridgeport, Conn., and a favorite with the men in that department, doesn't believe in running around to fires and telling the men what to do. He leaves that job to the Department's efficient Chief, Thomas F. Burns. But Commissioner Wellington has a "hobby" which gives the firemen a little fun occasionally. He's one of those motion picture camera fans. During the recent state convention at Bridgeport, Mr. Wellington took several reels with his trusty Cine and caught the boys in action. He gave a showing of the films at headquarters recently and the screen entertainment was a real success. Nice work, Commissioner!

Among those heard from this month were "Jimmie" Jackson, Oswego, N. Y., and Edward R. Bennett, Boston. Jackson echoes the modelmaker's complaint that the modern trends in apparatus design do not give the model builders much to go on. It isn't much fun making a model of a modern streamlined pumper, there simply aren't enough gadgets in view to please the modelmaker's eye.

Thanks to Arthur Selleck, 270 Trumbull Ave., Nichols, Conn., for that swell shot of the Bridgeport fire alarm office. Mr. Selleck has numerous out-of-the-ordinary views of the Bridgeport Department. He would like to swap photographs with other buffs who take pictures.

Also heard from was Edward H. Sprangers, 2228 W. Oakdale St., Philadelphia, Pa. Buff Leslie E. Keller's car


36TH. FIRE FACTS BY OTIS SMITH
THE MALTESE CROSS HAS BEEN IN EXISTENCE SINCE ABOUT THE YEAR 1019 A.D. IT IS SAID TO BE THE EMBLEM OF THE KNIGHTS OF ST. JOHN. THIS ORDER FLOURISHED ON THE ISLAND OF MALTA MANY CENTURIES AGO. FOR DETAILED ACCOUNT, SEE "AMONG THE FIRE FANS" COLUMN.
AMBULANCE ASSOCIATION
THE ST. JOHN
VARIATIONS OF MALTESE CROSS
THANKS TO ST. JOHN AMBULANCE ASSN. PRINCE ALBERT, SASKATCHEWAN & LIEUT. CHARLES E. BLEDSOE, TOPEKA, KANS.
PHOTO - COURTESY ARTHUR H. SELLECK NICHOLS, CONN.
BRIDGEPORT, CONN., FIREMEN HAVE AMPLE TIME TO "GET SET" FOR AN ALARM. DRAWING SHOWS OPERATOR EDWARD BEYER BROADCASTING WARNING TO ALL COMPANIES THAT A BOX IS ABOUT TO BE STRUCK. THIS IS DONE WHILE BOX IS BEING SET UP ON TRANSMITTER.
FIRE HOUSE - "ODDITY" - BALTIMORE, MD.
GONGS ARE DISCONNECTED NIGHTLY AT 8 P.M., TO AVOID WAKING THE MEN UNNECESSARILY. THEY ARE SWITCHED IN IF COMPANY IS TO TURN-OUT.

caught fire right outside No. 28 Engine Co., in Baltimore, Md., recently. This blaze gave No. 28 its shortest run of the year; damage was confined to the wiring. Incidentally, Keller is now an aspirant for the job of fireman in the Baltimore department. Other applicants who read this may be interested to know Mr. Keller's address, 1714 W. Baltimore St.

Thanks to "Scrappy" Patterson, Pittsburgh Bureau of Fire, for six nice photos of the barrel factory fire, and the Sharpsburg oil tanker fire. We note an interesting item or two in the *Phoenician News*, organ of the Phoenix Society, San Francisco. Every man in the San Francisco fire department is drilled twice a month under the able guidance of the drillmaster at the drill tower. Drills are varied in nature, and with mixed men and officers. This avoids making the drills monotonous. Captain Gallitan has many evolutions that the men follow, and they never know until they arrive at the yard just what kind of drill they are to have. Captain Gallitan was recently made honorary member of the Phoenix Society.

This column has completed its first year of publication. It has received the loyal support of buffs in all parts of the country. As always, this column wants to hear from buffs, young and old; lone-wolf, or club members. The home address of "Among the Fire Fans" is Otis Smith, 319 Gwynn Ave., Md.

FOG NOZZLES PROVE EFFECTIVE ON SMALL INTERIOR FIRES

Western Fire Chief Employs Device with Good Effects

By Clyde C. Oakes*

FIRE Chief Henry Quane of Anaconda, Mont., has been experimenting with the fog nozzle for some five years and recommends its universal adoption. We have witnessed many of the experiments he has conducted. The type he uses comes in sizes adaptable to hose diameters from garden hose to 2½ inches and is attached by removal of regular nozzle tips with which all Fire Departments are equipped. It operates at greatest efficiency as follows:

Garden hose size, 115 pounds pressure; three-quarter-inch size, at 130 pounds pressure; 1½-inch size, at 150 pounds pressure; 2½-inch size, at 175 pounds pressure.

In the use of the garden hose size, it is siamesed for fifty feet from a three-quarter-inch booster line two hundred feet long. It produces a fog or mist which when it comes in contact with fire instantly converts into steam and stops all blaze within a radius of seventy-five to one hundred feet or more.

Usefulness of fog nozzles is greatest when the Fire Department reaches the scene of the loss before openings are broken out or walls or roof burned through, and most fires are caught in this early stage. Furthermore the firemen can follow into the room without fear of too much heat.

Progress in solving the effective use of this modern invention is best expressed by comparison. Recently the writer had two losses, one in Anaconda, handled by Chief Quane, and one in a city not far away. Both fires originated in outside walls of frame residences caused by defective construction of fireplaces. The method used in the one location was to tear away plaster and lath in walls and partitions and part of fireplace, causing a repair bill of approximately $175 as a result of water and breakage, while Chief Quane, upon arriving at his loss, bored a two-inch hole in the outside wall and inserted the fog nozzle of the garden hose size, reduced the blaze without permitting moisture even to penetrate the plaster or destroy interior decoration. The result in his case was repairs costing $5.

The writer adjusted both claims and was so impressed with the results obtained where the causes of the fires were identical that we became interested and started our study of this attachment. We admit that some element of poor judgment was responsible for much of the damage in the first case cited; however, the outcome would still overwhelmingly justify the method used by Chief Quane.

We can recommend universal use of fog nozzles because their effect is instantaneous; moisture damage, minor; economy, advantageous, and their application simple. A fog nozzle was used at a fire in a hardware store, twenty-five by seventy-three feet, and stopped the blaze in this large building, where the fire was fed by a barrel of turpentine, a barrel of alcohol and 240 blazing automobile tires standing near the point of origin. Our investigation disclosed that the water damage in this store was comparatively small, considering the extent of the fire and the extreme heat which was sufficient to crack the plate glass front, protected by a partition back of the show window bulkhead.

We have seen so many fires during our years of adjusting experience where water was the cause of seventy-five or eighty per cent of the damage done. Therefore, we desire to greatly emphasize the minimum of water damage when the spray or fog nozzle is utilized. There has been great effort expended in educational work toward Fire Prevention, which is most commendable in a country where the fire loss ratios are the highest in all the world. Our experience of the past few years would indicate that this program has been successful to some degree. Therefore, it might be reasoned that an effort be expended to create general adoption of this new method of fighting fires. I am firmly convinced that such action would consummate in a large percentage reduction in water damage.

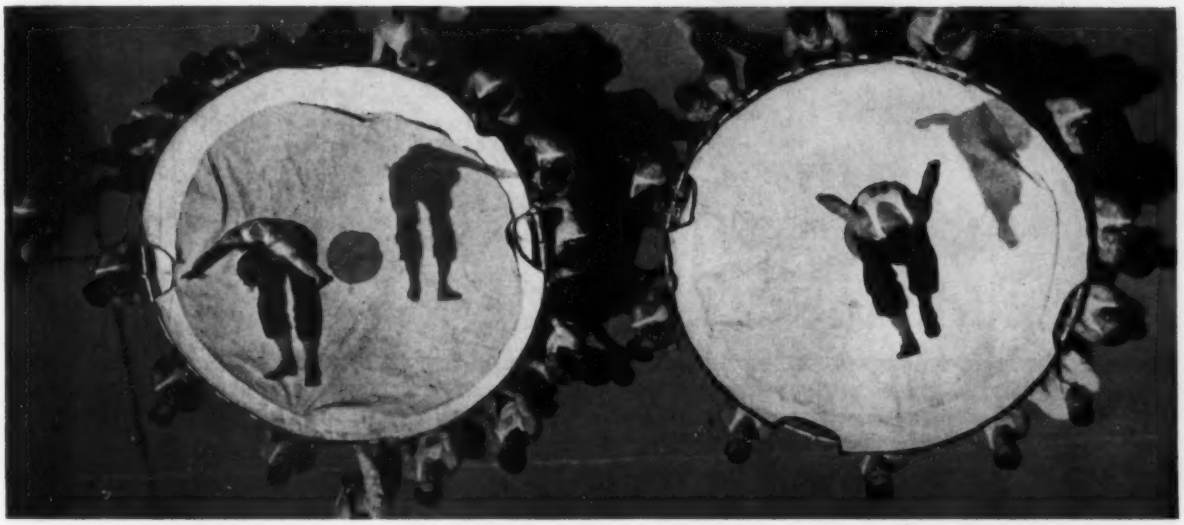
We believe that Fire Chief Henry Quane of Anaconda deserves much credit for his valuable contribution in the adoption of this method of fire fighting. Others could profit by his experience.

*Branch Manager, Fire Companies' Adjustment Bureau, Inc., Butte, Mont.

Waukegan, Ill., Firemen Win A Tough Fight

All available firemen and apparatus in Waukegan, Ill., aided by pumpers from the North Chicago Department, battled a stubborn blaze in a tavern in Waukegan. After several hours fighting, the blaze was brought under control. Firemen are pictured above directing a stream on the fire from an aerial truck.

In a Life Net, It's IMPACT STRENGTH That Counts!



K. E. CHART		
Weight of Body (*Lbs.*)	Height of Fall (*Ft.*)	Force of Impact (*Lbs.*)
165	115	18,974
"	100	16,499
"	95	15,674
"	85	14,024
"	80	13,199
"	70	11,549
"	65	10,724
"	60	9,899
"	55	9,074
"	50	8,249

FREE UPON REQUEST TO CHIEFS AND DEPTS.—a large interesting chart, giving forces of impacts from all heights and the formula for calculation.

LET'S suppose you are up 65 feet and assume your weight is 165 pounds. A Life Net is spread beneath you; the signal comes to JUMP! Do you know how much FORCE OF IMPACT your body will exert when it hits that Net? 10,000 pounds or FIVE TONS is the answer. It's a fact! Can you explain it?

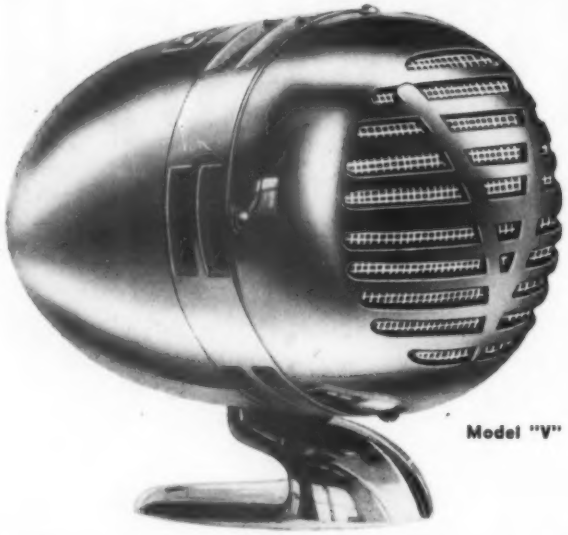
Now do you realize why a Life Net must be engineered and designed to both WITHSTAND and ABSORB such impacts? Yes, a body can land safely into a Net from the height of 65 feet! It's been done —with the ATLAS—the only Net which has the mechanical PATENTED features to "safe land" persons from this and greater heights. OFFICIAL TESTS back up our claims.

For complete safety at your Drill Tower — THE ATLAS DRILL TOWER SAFETY TRAINING NET—an engineered product.

ATLAS FIRE EQUIPMENT CO.

22 WARREN ST. NEW YORK, N. Y.

THE "VOLUNTEER"



Model "V"

THE SIREN DEMANDED BY VOLUNTEER FIREMEN WHO INSIST UPON

- *Performance*
- *Dependability*
- *Quality*
- *Appearance*
- *Low Price*

Have one on your car. Take no more chances. Priced so you can't afford to be without one. Two models available: the "V" in chromium (as illustrated), and the "O" in black lacquer. Made and backed by the world's largest manufacturer of sirens. Write for bulletin 62.

FEDERAL ELECTRIC CO., Inc. 8702 S. STATE STREET CHICAGO, ILL.

More and More . . .

FIRE DEPARTMENTS ARE DISCOVERING

ADVANTAGES OF ALUMINUM LADDERS

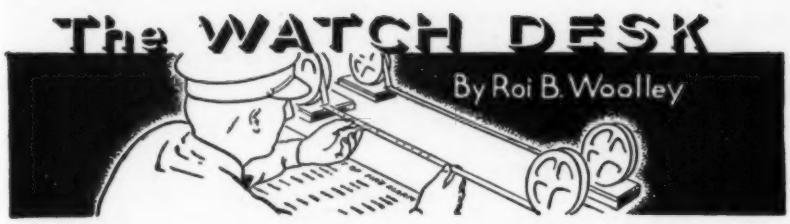
Because they are lighter, Aluminum Ladders can be handled and raised faster—and with fewer men—than ordinary ladders. They are stronger—and temperatures from 40 degrees below zero to 400 degrees above don't affect their strength. They are safer because they bend, rather than break suddenly when overloaded. In addition, they can't rust, splinter or burn.

When ordering new trucks or replacement ladders, be sure to specify ALUMINUM LADDERS. The first cost is the last cost!

New pumper owned by the Derry, Pa., Fire Department, showing Aluminum Ladder mounted over cab. This method of mounting allows more room for men and other equipment. Photo courtesy National Fire Apparatus Company.

Aluminum Ladder Company

200 FIFTH AVENUE TARENTUM, PA.



Our inquiring reporter overhauls the firemanic news of the day

That's Dishinng the Dirt!

Lawrence Ferris of Staatsburg (N. Y.), truck driver, didn't wait for Braves when his truck caught fire outside Arlington (N .Y.) He scraped dirt from soft shoulder of road and started heaving. Chief Arthur Ghee, Arlington, reports Ferris held fire but suffered loss of fingernail and bad burns of hands and arms.

Beer Enters Firehouse—Trucks Leave

We hear tell that club beer license, granted to Vol. department of Farmingville, north of Patchogue, was granted only on condition the fire trucks be removed from firehouse and stored elsewhere. As a result, 'cording to Chief Paul Gormsen of the Vamps, the department's two trucks have been housed in outside building, nearby. License was obtained to aid Vamps in raising funds to purchase new truck. Reports hath it, it's raised hades with natives.

Thumbing a Ride

When the Belden (Neb.) fire truck was hustling to answer an alarm in rural district, its engine sputtered and died deader'n the Versailles Treaty. Nothing daunted, Braves "thumbed" ride, inducing passing motorist to tow their rig to the fire. Deponent saith not whether fire waited for the Vamps.

Better Be Sure It's Water!

Add to our "There s one born every minute" column the name of Samuel Chromin, the Bronx (N. Y. C.), who, when he saw smoke pouring up from a car being welded on West End Ave., New York City, grabbed a bucket of what he thought was water and threw it on the car that was afire. It was gasoline, and the flare-up ignited Sam's clothing. Of course he ran, pursued by workmen, who finally had to stun him with a blow in order to smother his flaming garments. He went to hospital—on "danger list." Geo. Perrin, rescuer, suffered second-degree burns, too. No alarm was sounded.

Hot Off the Tape

Well the Capitol got its annual bath, at the hands of the Brothers of the Washington F. D., using high pressure streams. . . . Firemen weren't allowed to enter the South Department of Boston's City Hospital, when they responded to a box alarm, because of possibility of contracting contagious disease. . . . In Ardmore (Pa.) three vamps answering the same alarm, in two cars, crashed; cars were wrecked. . . . On 50th Anniversary of Lynn (Mass.) five million dollar fire a three-alarm blaze did $35,000 damage. . . . Chief Dunn of Plainfield (N. J.) and Braves were called to extinguished small fire in window of liquor store caused by rays of sun shining through bottle of likker igniting crepe decorations. . . . Chief James Evans Everett (Mass) F. D. transmitted second and third alarms by radio from his car as quick as he pulled up in front of burning paint shop. . . . In Green Bay (Wis.) Ken Foeller tried for three days to start his jitney in a parking lot. On third day engine gave a hopeful snort—went pfit! Wiring shorted, car burned, before firemen could save it. . . .Firemen of Rousseville (Pa.) traced a house blaze to bird's nest in eaves. Fire Marshal Dolby sez "them birds gotta quit smoking on the nest." . . . In Watertown (Mass.) Mrs. Pat Maher decided to get early start Thanksgiving, so put turkey in oven, lit fire—youguestit—oven overheated, set fire to chimney and roof, drove fifteen persons to street. But Turk' wasn't damaged! . . . Fire Capt, Phillip W. Hublitz, Eng. 60, N. Y. F. D., died from smoke inhalation at two-alarm fire. . . . Firemen of Ephrata (Pa.) saved five big pythons when side-show tent at annual farm show caught fire, menacing the reptiles. . . . Forty men burned to death in Mexico when two cars filled with oil were consumed by flames. . . . Spectators formed a "human life net" and saved Paul Marasco and Cornella Marasco, who were trapped by flames on second floor of burning house in Philadelphia (Pa.). . . . In Plainfield, (N. J.) a cripple, Edward Harris, unable to get upstairs to rouse rest of family lost three children and his 20-year-old cousin, as well as his artificial leg, when fire destroyed house. . . . A chemical explosion in Roumania killed 80, injured over 200. . . . A crazy salesman in Chippewa Falls (Wis.) killed five persons, including four members of his family, kidnapped and robbed gasoline station attendant, wounded three men in another robbery, finally burned own home and killed himself. . . . Germany has banned setting off fireworks in open air!

Detroit Firemen Enjoy New Comfort

The Fire Alarm Headquarters of Detroit, Mich., has installed a system in the Detroit Fire Stations for receiving night telegraphic alarms on a small bell. This arrangement holds the advantage of not awakening firemen unless it is a "go" alarm, in which case the night watchman turns on the large gong. The large gong is in operation from 7:00 a. m. to 7:00 p. m., while the small bell is used from 7:00 p. m. to 7:00 a. m.

Former Ansonia Chief Dead

Thomas P. Shortell, former Chief of the Ansonia, Conn., Fire Department, and well known in Connecticut fire circles for many years past, died at his home in Derby on January 7 after a month's illness. The former Chief was seventy-one years of age and had been in good health up to a few weeks prior to his death.

Chief Shortell served as head of the Ansonia department for twelve years and retired in 1926. He was an active member of the Webster Hose Company of Ansonia, of which he was a former captain.

For many years, he had been a member of the R. N. Bassett Hook and Ladder Company of Derby which is now known as the Paugassett Hook and Ladder Company.

THOMAS F. MAGNER.

To the Rescue With the Darktown Fire Brigade

This reproduction of a Currier and Ives print was used as a greeting card and calendar by the Elkhart Brass Manufacturing Company, Elkhart, Ind. When better lives are saved, the Darktown Fire Brigade will save 'em.

PROMOTIONAL STUDY COURSE

Herein is presented a series of definitions, questions and answers designed to aid fire department officers in preparing themselves for promotional examinations. In this department, which appears monthly, will be included questions typical of examinations held throughout the country.

Miscellaneous Questions

Answers to These Questions Will Be Given in the Next Issue of This Journal

1. What may happen when cast iron columns, heated to a high temperature, are struck by fire streams?
2. Are wire glass windows in metal frames considered to be real fire retardents?
3. Can fire, under any conditions, pass through wire glass windows if the windows remain intact?
4. What may happen to brittle building materials if they are struck with water streams after heating to high temperature?
5. Which is apt to cause greatest damage to steel girders: striking them, when they are heated, with water streams, or rapidly heating them?
6. Why are girders and columns in modern buildings protected by a covering of non-combustible materials such as concrete, tile, plaster, etc?
7. What is the chief reason for failure of buildings at fires?
8. What is usually the first operation performed by the Fire Department at fires?
9. What is meant by the "size-up" of a fire?
10. What is usually considered the first step in the "size-up?"
11. Name two structural weaknesses found in buildings of old construction, but not encountered in modern buildings.
12. Are converted old type buildings as a class troublesome from a fire fighting standpoint?
13. If so (previous question), why?
14. Should the occupancy of a building be considered in the size up, or is this a point which can be taken into account when the department gets in operation?
15. What is meant by "internal exposure?"
16. Could a frame building a full block from a lumber yard fire ever be considered an exposure?
17. If so (previous question), under what conditions?
18. In which season, Winter or Summer, are exterior hazards at a large fire apt to be the more severe? Why?
19. Which are usually best for covering exterior exposures; large streams or small streams?
20. Are chemical streams and small water streams really practical for dwelling fires in their early stages?
21. The discharge from a 1-inch nozzle is 200 gallons per minute. What is the nozzle pressure?
22. What is the discharge from a 1½-inch nozzle at 60 pounds nozzle pressure?
23. What is the discharge from a 2-inch nozzle at 90 pounds nozzle pressure?
24. Calculate the value of "K" for a 1½-inch nozzle on 2½-inch hose.
25. An engine is pumping through 500 feet of 2½-inch hose equipped with 1-inch nozzle. Engine pressure is 120 pounds. What is nozzle pressure?
26. What device serves both as a temporary hose leak stop and universal coupler for fire hose?
27. What precaution should be observed when using Cooper Hose Jacket?
28. For what purpose is the Bresnan hose roller used?
29. What other type of hose roller is there besides the Bresnan?
30. What is the "hose strap" and what is its purpose?
31. Name four different types of ladders used in Fire Departments?
32. Which has the greater strength and rigidity for a given weight: solid side ladder or trussed ladder?
33. What is a "bed ladder?"
34. What is a "fly ladder?"
35. Define "butt" of ladder.
36. What are the tormentors of a ladder?
37. How far should the base of a 40-foot extension ladder be placed from the building?
38. How far should the base of a 35-foot solid side ladder be placed from the building?
39. How many men are usually permitted on a 25-foot ladder?
40. When hoisting a 15-foot ladder to the roof of a building, at what point should the rope be placed on the ladder?
41. When climbing trussed ladders which side of ladder is placed toward wall?
42. Name one purpose for which a ladder may be used other than climbing?
43. About what do solid side ladders weigh per foot?
44. About what does the 14-foot pompier ladder weigh?
45. How should men hold a life net to catch a person jumping from a building?

Ex-Deputy Chief McClean Dead

Ex-Deputy Chief "Dunc" McClean of Toronto, Ont., died suddenly at his home on January 21, following a long illness.

He was born in that city and had joined the Fire Department in July, 1895. In 1906 he was promoted to Lieutenant; in 1910, Captain; District Chief in 1916 and Assistant Deputy Chief, three years later. In 1930, he was promoted to Deputy Chief and he held that office until he retired, due to ill health, last September.

Chief McLean was a member of the Scottish Rite and Parkdale Blue Masonic Lodge.

A Masonic service was held, attended by department and city officials. In accordance with his wishes, services were simple.

He is survived by his widow, a daughter, and a son Jack, who is a member of the Toronto Fire Department.

JOHN KARL LEE.

One Way to Get the Hydrants Painted

A number of novel sentences have been devised in Chicago, Ill., for traffic violators. A young man, who passed a light, washed the standard; others guided school children across the street, or painted fire plugs. The picture shows a girl painting a fire hydrant she ignored when parking.

Clear Water Does the Job

INDIAN
FIRE PUMPS

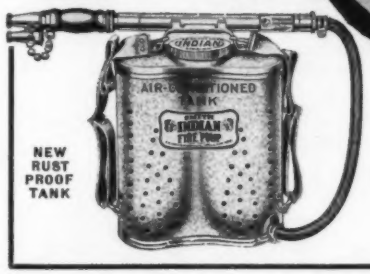
INDIANS are specially designed to put out partition fires, roof and chimney fires, incipient fires, fires from overheated stoves and all the other Class A fires which cause so much trouble. 5-gallon tank carries on the back or by hand. Brass pump throws powerful, pressure stream right to the base of the flame.

More and more departments find INDIANS the solution of the smaller fires which make up an average of 70% of their calls. No need to lay hose. INDIANS do the job quickly and cheaply. *Only clear water used, which costs nothing and is obtainable anywhere.* Water damage is held to a minimum.

Let us send you fire department testimonials from all over the country—they speak for themselves.

Write us today.

DON'T MONKEY *with* FIRE



NEW RUST PROOF TANK

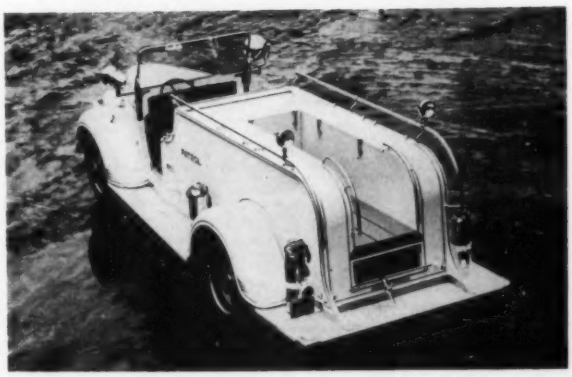
A complete fire department in one compact unit

D. B. SMITH & CO.
406 Main Street, UTICA, N. Y.

PACIFIC COAST AGENTS

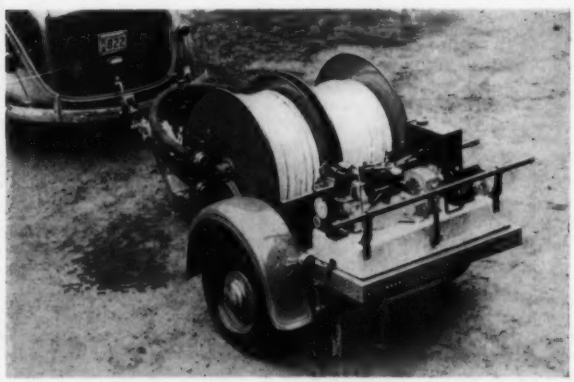
Hercules Equipment & Rubber Co., 550 Third St., San Francisco, Cal. — Mill and Mine Supply, Inc., 2700 Fourth Ave., S., Seattle, Wash.
Western Loggers' Machinery Co., 302 S. W. 4th St., Portland, Ore. — Roy G. Davis Company, 617 E. Third St., Los Angeles, Cal.

Custom-Built—*yet at Standard Prices!*



A Modern Type Fire Patrol Truck built for the town of Fair Haven, N. J.

Specifications: **100 gallon pump—power take off. Booster Tank — 200 gallon capacity. Booster Hose—250 feet ¾" hose. Water-tight compartments for tools and accessories.**



A Mobile Portable Unit

100 to 150 gallon pump at 120 lbs. pressure. 22 horsepower 4-cylinder engine, water cooled, at regulated pressures. Hose—500′ of 1⅛", 500′ of 1½". Can be equipped with foam generator unit, if desirable.

(Patent applied for)

Manufacturers of Motor Fire Apparatus and Automatic Alarm Systems

SEALAND CORP., BRIDGEPORT, CONNECTICUT

AMERICAN-MARSH PUMPS

World's largest pump manufacturers building fire pumps
Pumps--and pumps only--since 1873

Dear Mr. Fire Chief:
Selecting a new fire pump is a tough job. You are held responsible for your recommendation, and there are many reliable fire pumps on the market today. You cannot go wrong, however, if you suggest buying one of our Barton-American **Front Mounted or Midship Mounted** Pumps - because we not only sell an up-to-date fire pump, but give you

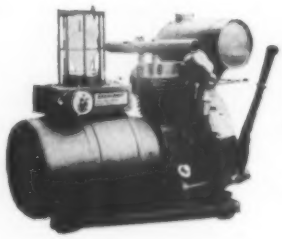
HIGHER PRESSURES AT LOWER ENGINE SPEED

the advantage of which you will readily appreciate.

We shall be glad to give you any desired information.
Write us for bulletins and specifications covering our complete line.

Thank you for your attention. Yours very truly,
AMERICAN-MARSH PUMPS, INC., Battle Creek, Michigan

FLOODLIGHT with KATOLIGHT
portable light plants, 4 cycle, 600 watts, 60-cycle AC 110-volts. Also charge 6-volt battery from same plant. Runs electric drills, saws, etc.



Sizes 350 to 10,000 Watts

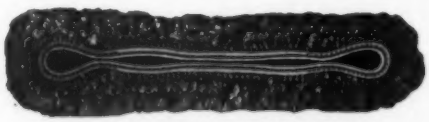
Write to
KATOLIGHT
105 ELM STREET
MANKATO, MINN.

COVER'S NOD and SHAKE SMOKE MASK

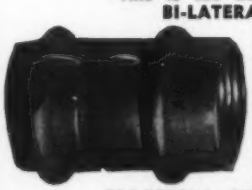
Carry It in Pocket. Slip on in a Jiffy. Positive Protection to Eyes Against Smoke and saves the lungs.
Why get sick?
Price $48 per Dozen
Upon receipt of $4.00 one will be forwarded as a sample, postpaid.

H. S. COVER
Station A, SOUTH BEND, IND.

MOST SPECTACULAR NET VALUE IN FIRE EQUIPMENT HISTORY
Follow the Leaders
Inquire about the new
SUPERIOR
LIFE NETS
MOELLER SYSTEM
SUPERIOR FIRE EQUIPMENT CO.
72-76 PARK PLACE NEW YORK, N. Y.

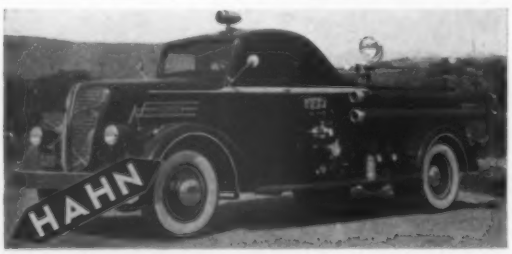


This is the new LIGHT WEIGHT BI-LATERAL FIRE HOSE

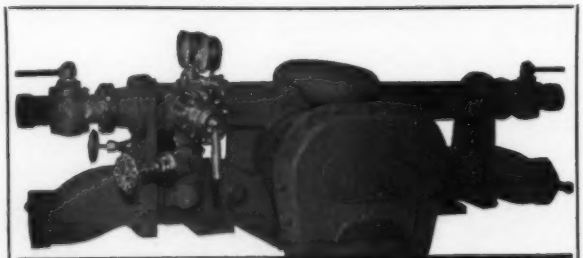


This hose will stand 900 pounds pressure and weighs but 45 pounds to the section uncoupled.
Here's the new DROP-FORGED rocker lug coupling (not cast bronze), with the swivel-protecting feature.
This coupling will stand several expansions and can be used over and over again, saving your city at least 20c to 30c per foot on future hose purchases.
When in the market, let us show you that we can give you the best service obtainable for the least money.

BI-LATERAL FIRE HOSE COMPANY
20 N. Wacker Drive Chicago, Illinois



HAHN FIRE APPARATUS
Air-Cooled or Water-Cooled
Powered Apparatus
HAHN MOTORS, INC. HAMBURG, PA.



NORTHERN PUMP COMPANY
ESTABLISHED 1907
MINNEAPOLIS, MINN.

Chief W. R. Shaber Dies

William R. Shaber, veteran Chief of Sparks, Nev., died following a heart attack. He was stricken shortly after attending a firemen's school held in the Sparks Fire House.

Chief Shaber was born in Reno, Nev., in 1876. He had been connected with the Sparks Fire Department since it was organized, and served as a volunteer fireman during its hand cart days. In 1916 he was appointed Chief and he had served in that capacity ever since. It was under his supervision that the Sparks fire equipment was motorized. During his entire career in the department, he directed campaigns to lessen the fire hazards.

In addition to his duties as Fire Chief, he served as Plumbing, Building, and Electrical Inspector and as Constable of Sparks. He was an active member of the Pacific Coast Fire Chiefs Association, and was active in many fraternal organizations.

He is survived by his widow, two daughters, his son, eight grandchildren, brother, and two sisters.

New Pumper for Wilkinsburg

Chief Samuel H. Jefferies, Wilkinsburg, Pa., is advertising for a new 1,250 gallon pumper. Bids are to be opened December 11, 1939.

To Celebrate 100th Anniversary

The Goodwill Fire Company of York, Pa., will celebrate its one-hundredth anniversary in December, 1939. The Company was organized in 1839.

Crash Trucks for South Africa

Recently South Africa received a shipment of crash trucks for airport equipment from the LaFrance Fire Engine and Foamite Limited, Toronto, Can. These trucks have aroused considerable interest in governmental circles, and it is believed a great many more will be built in Canada for export to other British Possessions for use at airports.

The chassis are Ford, powered with a Mercury Engine, and equipped with tandem rear axles. The equipment carried includes four seventy-five-pound Alfite (carbon dioxide) cylinders; two Alfite reels with 100 feet of hose on each; two 2½-gallon Foamite fire department type extinguishers; two Alfite fifteen-pound extinguishers; six pails of powder which when mixed in a 200 (Imperial) gallon water tank permits a discharge of 2,400 (Imperial) gallons of fire foam; a generator for mixing the powder; two fifty-foot lengths of 1½-inch special generator hose and a nozzle; and a booster pump for supplying water under pressure to the generator. Miscellaneous equipment includes axes, crowbars, pike poles, electric lanterns, and a revolving type of searchlight.

A Side View of One of the Crash Trucks Delivered to South Africa

Ex-Chief J. T. O'Donnell Dead

James T. O'Donnell, who retired a little over a year ago as Chief of the Salvage Corps, St. Louis, Mo., died at the age of sixty-seven, while under treatment for a complication of diseases.

Chief O'Donnell was born in St. Louis, Mo., on August 27, 1872. He entered the fire service in 1896 and was promoted to Lietuenant five years later. He resigned from service June 15, 1903, to enter the St. Louis Fire Prevention Bureau as an Inspector. He was appointed Chief of the Underwriters Salvage Corps in 1910. He retired from active duty on a pension, after having served as Chief for twenty-eight years.

Chief O'Donnell is survived by two sons and two sisters.

Motorized Field School

Hailed as a major step in fire prevention, a new motorized field training school was put into operation at a meeting of the Massachusetts Fire Departments' Association. Sponsored by the State Department of Education, this new motorized apparatus will make a state wide tour carrying fire fighting training to firemen of all communities. The unit is fitted with up-to-date extinguishers, masks, spray nozzles, floodlights, and other accessories, the use of which will be demonstrated by attendants, with the aid of local fire drill instructors.

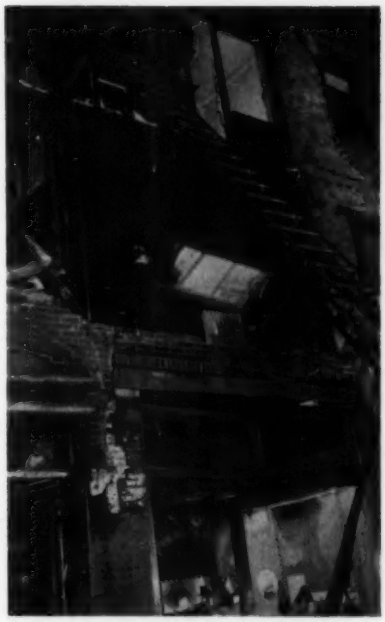
Fire Apparatus Specifications

The National Fire Protection Association has issued a set of specifications for automobile fire apparatus in a new form. The principal feature of this new edition is that the specifications are arranged in a form that makes them easy to use in connection with purchases to be made by a fire chief or a municipal purchasing agent.

The four principal types of fire apparatus used by cities are included, such as pumper (triple combination), ladder truck (city service), ladder truck (aerial), ladder and pumper (quadruple combination).

Following the specifications of the principal types of fire apparatus are provisions applying to all types of apparatus. Included in these provisions are such specifications as general construction, carrying capacity, rating of pumpers, gasoline motor, cooling system, lubrication, wheel brakes, etc.

The segregation of special and general provisions should assist both purchasers and contractors. The general provisions represent a standard with which all experienced builders of motor fire apparatus are familiar.



—Photo, Courtesy Bill Herries

Force of Explosion Illustrated

A gas explosion during a fire in a building at Lexington Avenue and 48th Street, New York City, was of sufficient force to blow the walls out. The explosion was heard as high as the tenth floor of the adjoining hotel. Luckily no one was hurt.

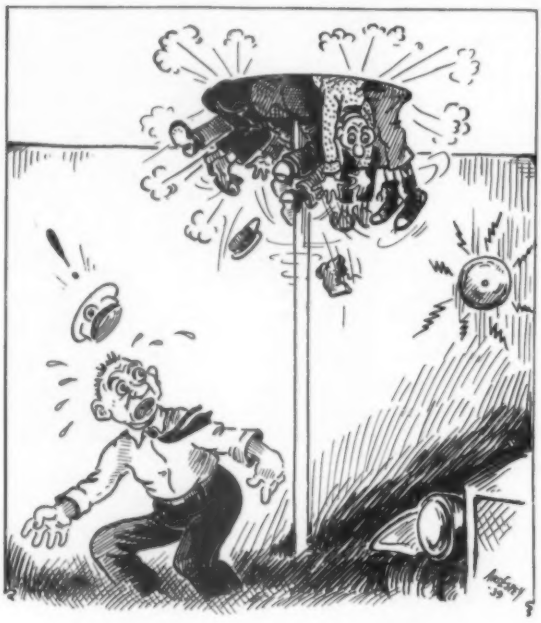
Fire Loss Kept at $208 in 1939

Oak Creek, Col., a coal mining town with a population of about 1,500, had a fire loss of only $208 in 1939. The Oak Creek Volunteer Fire Department is quite proud of this figure in view of the fact that ninety-five per cent of the buildings in the town are wood structures.

1939 Losses Announced

The National Board of Fire Underwriters announced that the total losses reported during 1939 amounted to $313,498,840, or 3.8 per cent more than those reported in 1938. Except for January and the last four months of the year 1939, each month showed a gain over the corresponding month of the previous year. December's losses were estimated at $27,959,200, or a 14.5 per cent drop from the December 1938 total.

FALSE ALARMS



When All Try to Make the Pole at Once

JUST AN ACCIDENT

The *Evening Post* had a new reporter assigned to cover the fires. He was not long in getting acquainted with the various fire officials to help him with his stories. He became chummy with the Captain of the truck company.

The reporter had been assigned to get a human interest story for the Sunday edition, and noting that the Chief had a large scar on his head, his first thought was that here was a story of fire and heroism that would make good copy. So he called on the Captain.

Said he, "Captain, do you know how the Chief got that large scar on his head?"

The Captain let out a big howl.

"Surely, I thought you knew the story by this time. It seems that when he was a youngster, he was going out on a party with some other fellows. They told him before he left the house to put some toilet water on his hair. Well, the seat fell down and caught him on the head."

He went south for the winter. He found it.

BASIC FACTS

An apparatus salesman was away from his office for an extended trip and so he was most anxious to know, as the train neared New York, what time the train would reach Grand Central Station.

He asked the porter:

"George, what time do we get to New York?"

Said the porter:

We is due to get there at 1:15, unless you has set your watch by Eastern time, which would make it 2:15; then, of co'se, if you is goin' by daylight savings time, it would be 3:15, unless we was an hour an' fifty minutes late—which we is."

THE PUZZLE

The young fellow who called at headquarters for small supply orders, was a likeable chap, but as the job did not pay very well, he had a hard time making ends meet.

One day after he had completed taking notes on the fire that morning, he remarked to the tillerman:

"This is a wonderful suit of clothes I'm wearing."

The tillerman looked with a more than a casual glance and said:

"It looks like an ordinary piece of goods to me."

"What I mean," continued the visitor, "is that the wool was grown in Australia, thread made in Britain, the cloth woven in New England, the suit made in New York, and the store I bought it from is out here in the west."

"What's so wonderful about that?" he was asked.

"Isn't it wonderful that so many people can make a living out of something I haven't paid for."

A man's intellect is judged by his ability to disagree without being disagreeable.

SATISFACTION ALL AROUND

To please one of the ward politicians, a young fellow of pleasing personality, but not so pleasing work habits, was engaged to paint the fire hydrants. He worked for a short time, was not satisfied with the employment, and left to find work elsewhere. Evidently he had succeeded, for he called upon the Chief for a letter of reference.

The officer wrote:

"To whom it may concern. John Jones worked for us for one week, and we're satisfied."

A blotter is something you spend your time looking for while the ink is drying.

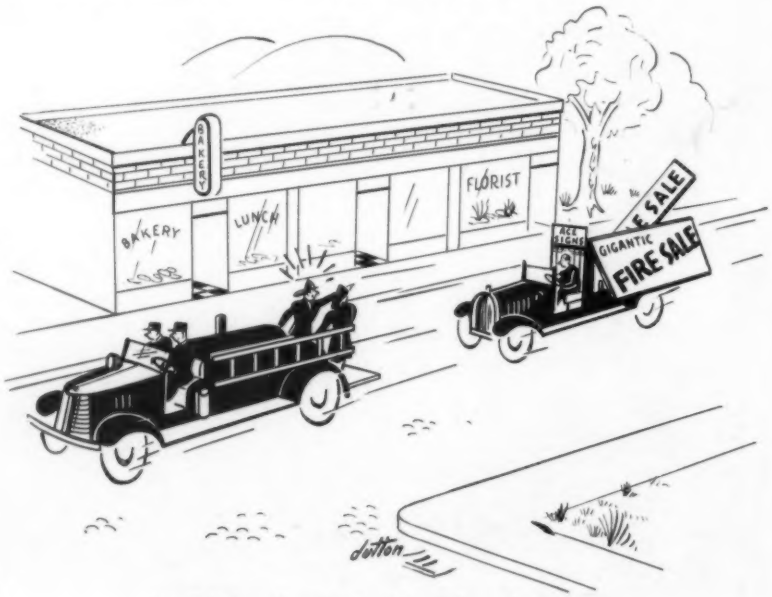
JUST A DIFFERENCE

Cappy was a volunteer firemen, kind, smiling, and as could be expected, fat.

At a meeting, he could smell the odor of coffee, for refreshments were always served after the business was over.

"Gee," remarked Cappy, "I'm always hungry."

"No you're not. Hunger is what makes you eat to keep alive. Appetite is what makes you so fat."

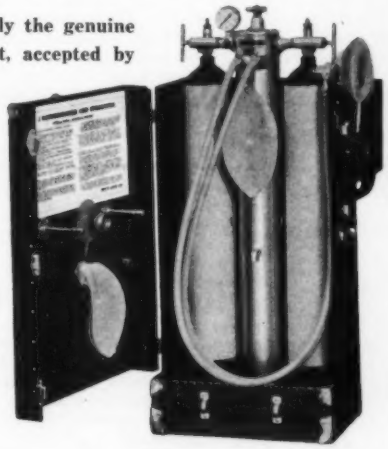


An Ambitious Sign Painter Who Follows the Apparatus

THERE'S NOTHING *EXPERIMENTAL* ABOUT THE E & J RESUSCITATOR, INHALATOR AND ASPIRATOR . . . .

Backed by 12 years of carefully controlled research and practical experience, the E & J is now used by most progressive fire departments throughout the entire country.

Insist upon only the genuine E & J product, accepted by the Council on Physical Therapy of the American Medical Association and built in Glendale, California.



In New York, address all communications to our exclusive factory representative: The E & J Resuscitator Co., Inc., 17 E. 42nd St. In New England States: The E & J Resuscitator Co., Inc., 581 Boylston St., Boston.

E & J Manufacturing Co., Glendale, Cal.

UTILITY EQUIPMENT FOR ANY FIRE DEPARTMENT

● This comparatively inexpensive unit "fills in" in many important ways to make any fire department, large or small, better able to do its work.

Within its capacity—150 G.P.M. at 100 lbs. pressure—it will do any work required. Readily attached to any passenger car, it will negotiate many roads which a heavy pumper cannot travel. For outlying or farm fires it is therefore ideal.

Also, you will find it useful for dewatering basements or other "clean-up" work after fires or in other emergencies. The self-priming centrifugal pump cannot clog and is not harmed by dirty water.

Full details will be supplied on request.

LABOUR FIRE TRAILER

THE LaBOUR CO., Inc. • Elkhart, Indiana, U. S. A.

Something Extra TO COUNT ON • • •

REPUBLIC FIRE HOSE

From small volunteer units to many of the nation's largest municipal fire-control systems, Republic Fire Hose is depended upon for reliable performance and the ability to withstand every type of abuse. Rigid manufacturing control and laboratory testing provide a hose construction that justifies this confidence. Moreover, Republic Fire Hose offers an additional feature that can always be counted on . . . a safeguard against hose failure due to the destructive action of mildew and rot. This is the exclusive Provar Process—permanent treatment which neither affects the physical properties of the hose nor washes out. Republic Rubber Division of Lee Rubber and Tire Corporation, Youngstown, Ohio.

REPUBLIC RUBBER

Pulmosan #1500 FUMEGARD FACE MASK

FOR SMOKE and GASES

EFFICIENT—LIGHT INEXPENSIVE

No straps, hose or bulky chest canister.

$6.00 F.O.B. Brooklyn, N. Y.

Postage prepaid in U. S. if payment accompanies your order.

With the low-cost, efficient No. 1500 Fumegard Face Mask, your budget can easily include adequate equipment for emergency Gas and Smoke protection. The No. 1500 Fumegard does the work of bulkier, costlier masks. Less encumbrance for firemen. Protects against smoke, noxious gases (except carbon monoxide), refrigerants, etc. Lightweight, one-piece construction of pure rubber face piece, large full-vision plastic window and canister containing ¾ lb. of scientific gas and fume absorbents. Adjustable headbands have 3-point suspension to assure snug, comfortable fit. Canisters refillable. Order a No. 1500 Fumegard. Examine it; test it.

PULMOSAN SAFETY EQUIPMENT CORP.

Dept. FE - 176 Johnson Street - Brooklyn, N. Y.

Announcing the

IMPROVED

STERLING MODEL "M"

General Fire Alarm Siren

It's the siren that gives *immediate action* and which can be depended upon always, regardless of weather conditions. It will get your men together and to the scene of a fire without one lost moment.

Made by the oldest and largest exclusive makers of siren signals, "Model M" is unconditionally guaranteed. Write for Bulletin No. 631 which illustrates and describes the complete "Model M" system.

STERLING SIREN FIRE ALARM CO., Inc.
55 Allen Street Rochester, New York

EDDY

Fire Hydrants

Are given preference by so many fire protection and water works men because they know that more than half a century of experience goes into their manufacture and they embody valuable and exclusive features.

Write for the Facts

EDDY VALVE CO.
Waterford, N. Y.
James B. Clow & Sons, Chicago Agents

WATEROUS

FIRE PUMPS

A complete line of dependable rotary, single-stage and series-parallel centrifugal fire pumps. Built to high quality specifications.

Waterous Dependable Established 1886

WATEROUS COMPANY, ST. PAUL

HEWITT-GUTTA PERCHA

FIRE HOSE

A complete line, including
Wax Treated - Solid Multiple Woven
AND
Single and Double Jacket Hose

Manufactured by
HEWITT RUBBER CORPORATION
BUFFALO, N. Y.
"Territories Available"

Valuable Information

All the manufacturers you will find represented in our advertising pages have interesting and valuable data about their equipment which is yours for the asking. When writing, be sure to mention FIRE ENGINEERING.

Manufacturers' Announcements

E & J Company of New York Announces New Emerson Model

An enthusiastic reception from the trade is announced by William R. Stephenson, Manager of the E & J Company of New York, in behalf of its new Emerson Model E & J Resuscitator, Inhalator and Aspirator. It contains a number of improvements in design and manufacture calculated to give still smoother and more sensitive operation.

Among these is the new aspiration attachment, with its clip-top suction bottle and catheter, which enables the operator to automatically aspirate froth or mucus from drowning and other cases, thus insuring open air-passages so necessary for effective resuscitation. Several parts of the apparatus, as for example the outlet spout for resuscitation and the end wrenches holding the oxygen tanks in place, have been redesigned so as to add to their strength, utility and appearance. Both infant and adult face cushions have been made more face-conforming, and the metal airways are of new shape and material, enabling them to withstand any amount of abuse and sterilization. Accessory holders and springs are now made of phosphor bronze or polished stainless steel.

"With these improvements," said Mr. Stephenson, "we are keeping abreast of the increasing demand of fire chiefs to put in their hands an instrument which is foolproof, selfadjusting, and gives the maximum benefit to victims of smoke poisoning, gas poisoning, and other asphyxia. In this manner, we are meeting the challenge inherent in the fact that most of the thousand people who die from asphyxia every week in this country are first treated by lay first aiders, like the rescue crews of fire departments. This explains why medical authorities agree that the presence of resuscitation equipment on the rescue rigs of leading fire departments has made a considerable contribution to reducing unnecessary asphyxial death in the United States."

E. L. Sweet Made Sales Manager

E. L. Sweet, formerly of the American-LaFrance and Ward LaFrance, is now Sales Manager of the Sealand Corporation, Bridgeport, Conn.

Gas Protection with Face Masks

The Pulmosan Safety Equipment Corporation, 176 Johnson Street, Brooklyn, N. Y., has issued a circular showing their No. 1500 and No. 1600 Portable Emergency Gas Masks.

Both masks are one piece units. No. 1500 provides protection against noxious fumes and gases as well as against certain types of dusts. No. 1600 provides protection for the mouth and eyes against acid and organic fumes such as ammonia, smoke, chlorine, tear gas, etc. Each mask has a metal canister which protects and holds the filtering material, and which can be refilled when necessary.

The circular also contains short descriptions of other respirators that are manufactured by the Pulmosan Safety Equipment Corporation.

Kerotest Products

The Kerotest Mfg. Co., of Pittsburgh, Pa., have recently announced a high powered portable fire service light.

Edward G. Mueller

This is the second Kerotest product for the fire field, the first being the Kerotest portable cutting torch. The torch has already established itself as a very useful fire fighting and rescue appliance, though less than a year has elapsed since its introduction into the field.

Edward G. Mueller is President of the Kerotest Mfg. Co.

New Oxygen Breathing Apparatus

Bulletin No. BM-2, issued by the Mine Safety Appliance Company, Pittsburgh, Pa., announces its most recent development in Mine Safety Appliance oxygen breathing apparatus, a new one-hour back-type model.

Using the same principle of operation as the front-type one-hour oxygen breathing apparatus produced by this company, the new model is carried on the wearer's back and is protected by a reinforced aluminum cover. This new model will find favor wherever use of the front type machine is hampered by special conditions requiring work in a prone or stooping position. The new back-type apparatus weighs about twenty-four pounds complete and is not too heavy.

Resuscitator Inhalator and Aspirator

"Fight Asphyxia on the Spot" is the title of a pamphlet circulated by the E & J Resuscitator Company, Inc., 17 East 42nd Street, New York City. The operation of the E. & J. Resuscitator and Aspirator is discussed and pictures are included of the apparatus in use.

The apparatus is motivated by oxygen, and oxygen-carbon dioxide mixtures. When a pressure of four ounces is built up in the lungs, the mechanism automatically reverses, and a suction of three ounces is produced which is again followed by a positive pressure. When the patient begins breathing, the mechanism can be changed from a resuscitator to inhalator.

Fire Alarm Unit

The Horni Signal Manufacturing Company, 5151 Greenwich Street, New York City, has released an eight-page booklet describing the Type "C" Compositrol Central Station Fire Alarm Unit. Smaller communities which do not require Class "B" or Class "A" systems by reason of originating less

FIRE CHIEFS—

Before you buy your next quantity of Fire Hose, get in touch with

QUAKER

More and more Fire Chiefs from all sections of the Country are becoming Quaker users. The Fire Hose that you can depend upon when action gets at fever heat.

FIRE CHIEFS—
Return the Quaker Man with notation when you will next buy Fire Hose and quantity. A nifty souvenir is yours for this information.

QUAKER RUBBER CORPORATION
(formerly Quaker City Rubber Co.)
Main Office and Factory,
PHILADELPHIA, PA.

Branches
NEW YORK • CHICAGO
HOUSTON • SAN FRANCISCO

than 300 alarms annually, are permitted to use an unattended central station in conjunction with an outside audible alarm. This is known as a class "C" system.

Illustrations accompany the description of the general apparatus specifications, component parts, and installation and connections, so that the reader will understand the apparatus more fully.

For the Class "C" System, a compressed air signal is recommended. A plan is enclosed in the booklet showing the typical equipment required and its relative disposition in an average building.

By William Paul Babcock

THE Nyack Fire Patrol observed its twenty-fifth anniversary with a banquet held at the Hotel St. George, Nyack, N. Y., on January 25. Ex-Chief Howard Sleight served as toastmaster at the turkey dinner.

Well, it's all over but the shouting, and we're all looking forward to the fiftieth anniversary celebration. Believe it or not!

* * *

I am very sorry that owing to pressure of other business which pays me better than writing this column, I overlooked a couple of items of recent correspondence. It's a darned shame, too, because I've been kicking so hard when you fellows don't write in and now that some of you have done so I have gone and neglected you.

So I'll try to make amends herewith, and IF the Editor has space for these items you'll find them here, otherwise I promise on my honor as a fireman to have them in next month.

Now for the mail: Got a nice long letter from old faithful Chief Allan H. Clarke, of Lakeland, Ont.; just personal stuff, nothing printable at this stage; also a nice card from "Salvage Dan Shire" who has writer's cramp when it comes to telling me about his First Aid Council proposition. And I hope Fireman Charles Blickstead of No. 5 Fire Station, Montreal, P. Q., secured all the necessary information he sought through this station.

Very glad to get the following from Superintendent H. R. McDonald of Louisville, Ky., Salvage Corps. "Fire in a church in a Negro section of our city. Attic well involved on arrival. Second alarm sounded, seven streams in action, F. D. did an excellent job of confining it to the attic. We spread forty-eight covers and although it seems incredible, no damage claimed on contents. There was $8,000 insurance on same. Building loss $2,408.20." Well, Chief, that was a darned good job and a real fire, too, and let us have some more of the same, especially those jobs I know you do among the poorer neighborhoods where there is little or no insurance.

* * *

A good salvage rooter from this area won't be doing any rooting for a couple of months or so. Deputy Chief Ed. Siller of Yonkers, en route to a fire, got in the way of an ornery citizen's car, and the latter must have been bigger and better than the Chief's, because Siller he came out with a broken leg and the other guy had only minor bruises.

* * *

Beginning with next month I shall run a series of articles in this column recounting the authentic history of the beginning of salvage work in the U.S.A., based on actual records taken from the files of the New York Fire Patrol, and not merely my own version or anybody's hearsay.

With all due respect to a worthy contemporary journal, I do think its editors should check on any story purporting to relate to historical data, especially when the author has not been well known in salvage circles.

Firemen Build Drill Tower

Located in the rear of Station No. 4 in San Bernardino, Cal., stands the newly completed drill tower that was built by the members of the Fire Department. The tower is fourteen feet long, twelve feet wide, and about forty-seven feet high. The rafters are two by twelve inches.

The first floor is fourteen feet high; the second, third and fourth floors are ten feet high; the fire wall is two feet, ten inches; the windows are 3.5 feet wide by six feet high; the stairway is 2.5 feet wide; and the scuttle hole in the roof is thirty inches square.

There are no windows on the east or south sides, but there are double windows on the west side and single windows on the north side. The windows are equipped with removable shutters for enclosing the tower openings when not in use.

Due to the erection of the tower and the increasing of the personnel with eight new men, the insurance rates in the city were reduced ten per cent.

San Bernardino Drill Tower

California Chiefs Confer

The twenty-seventh bi-annual conference, California Fire Chiefs Conference, Southern Division, was held in San Diego, Cal., January 20, 1940.

The officers elected for the next bi-annual were: President, Chief H. M. Topping, Whittier; Vice-President, Chief A. Tomblin, Orange; Secretary-Treasurer, Chief A. H. Lakford, Glendale; and Chairman of the Board of Directors, Chief John E. Parrish, San Diego. The selection of the next meeting place will be decided by the Board of Directors.

Forty-five cities of Southern California were represented by their respective Chiefs. A total of 159 persons registered for the Conference.

Interior Fire Alarms Ruling

The Fire Commissioner of New York City has filed with the City Clerk the text of an amendment to existing statutes which contain requirements relative to interior alarm systems in single room occupancies. It provides for an adequate and reliable closed circuit fire alarm system in every multiple dwelling single room occupancy in accordance with the requirements of the Fire Commissioner.

The signal boxes, which should be at accessible stations, shall sound simultaneously all bells in the building. There shall be sufficient bells, horns, or whistles to be heard by all occupants, and there shall be no less than two bells or horns or whistles. There must be a control board in the janitor's quarters with a trouble indicator.

Before the installation of any fire alarm system, the specifications and detail drawings of the system must be submitted to the Fire Commissioner for approval. The street location of the nearest outside alarm box should be posted at each box location in the building. These new specifications in no way waive or modify the requirements for interior alarm systems specified under the Administrative Code.

New Firehouse Stands Vacant

A new fire house in Charleston, W. Va., faces the prospect of being unoccupied for several months because there are neither men nor equipment for it. This recently built fire station is one of the four that were completed on a PWA and municipal bond issue.

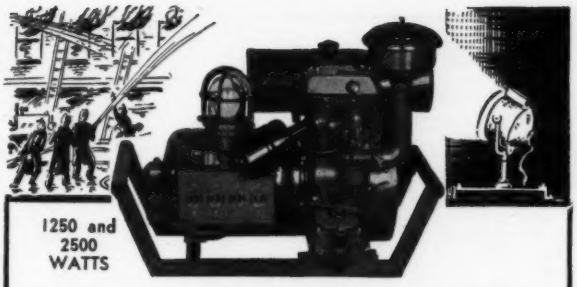
It was pointed out that Charleston is growing, and that by the time a fire company is needed, the money will be available for men and equipment. City officials claim there is no harm in being a little overbuilt at the present, because one cannot say when a similar chance would present itself in the future.

CAIRNS
SERVICE HELMETS

"The TOPS" for SAFETY

When you buy a helmet, you're buying protection. Be sure you get the protection you expect. Over 100 years of experience are built into every CAIRNS HELMET, and the best safety features that experience has developed. Rugged top grain leather is used, specially processed for strength and heat resistance, and reinforced to maintain shape—features valued by every experienced fireman. Made in a number of styles and weights, to meet your preference. Write for Catalog 229, describing both leather and aluminum helmets, and the CAIRNS QUALITY line of firemen's personal equipment.

CAIRNS & BROTHER
444 LAFAYETTE ST. NEW YORK
Founded in 1836



1250 and 2500 WATTS

"U. S." PORTABLE LIGHT PLANT

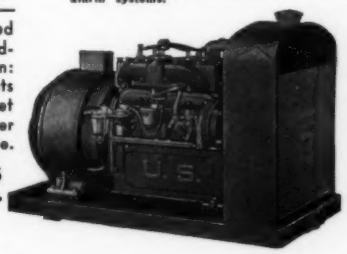
This 1250 watt, portable unit has been designed expressly for fire department use. It is small, light, compact and equipped with carriers for easy portability out on the job. Air-cooled 4-cycle engine 2⅝" bore x 2⅝" stroke. 2.4 H.P. 2 gallon fuel tank. Quick starting. Also 2500 watt size, same design.

We are builders of the world's most complete line of Electric Plants. In all parts of the world —arctic expeditions or tropical plantations — U. S. plants have proved their steadfast dependability. And the reason: "U. S." generating sets are designed to meet the conditions under which they will operate.

LARGER SIZES

Larger sizes are available. Illustration below is 5 KW 4-cylinder Portable Unit. Automatic remote control. Write for complete information.

Also automatic emergency units for alarm systems.



UNITED STATES MOTORS CORP.
430 Nebraska Street
Oshkosh, Wis.

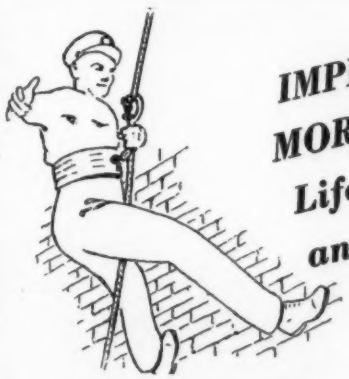
YOUR BADGE OF HONOR

Something more than a decoration . . . an insignia of courage and unselfish devotion to duty. That badge should be worthy of its place on your uniform . . . let it radiate quality and your pride in wearing it. BRAXMAR has been making badges for more than 60 years.

C. G. BRAXMAR CO., 242 West 55th Street, New York

BRAXMAR BADGES

Standard for Over Sixty Years



IMPROVED MORRISSEY Life Belt and Hook

A FAMOUS life belt, standard for years —but now it's even better!

When you use the Morrissey life belt, you can control rate of descent with only slight finger pressure—and you can always have one hand free! You can't make a wrong turn of rope on the hook—and you can't burn your hands!

MORRISSEY MFG. CO.
14 EXCHANGE ST. AUBURN, N. Y.

Convention Dates

Feb. 28—FAIRFIELD COUNTY FIRE CHIEFS' EMERGENCY PLAN. Monthly meeting, Glenbrook, Conn. Secretary, John Moehring, Toms Road, Stamford, Conn.

Feb. 28-29—INDIANA FIRE DEPARTMENT INSPECTORS' SCHOOL. Meeting, Indianapolis, Ind. Assistant Director, Emmett Cox, Indianapolis, Ind.

Feb. 28 — CENTRAL WESTERN (OHIO) FIREMEN'S ASSOCIATION. Bi-monthly meeting, Southern Hills, Dayton, Ohio. Secretary, Roger C. O'Donnell, Covington, Ohio.

April — FIRE CHIEFS OF MAINE. Quarterly meeting at Scarboro, Me. Secretary-Treasurer, Charles W. Bowker, South Paris, Me.

April—FLORIDA STATE FIREMEN'S ASSOCIATION. Annual convention, West Palm Beach. Secretary, F. C. Pfaender, Box 344, Chattahoochee, Fla.

May — NATIONAL FIRE PROTECTION ASSOCIATION. Annual convention, Atlantic City, N. J. Secretary, Hovey T. Freeman, Providence, R. I.

*May 8—DEL-MAR-VA VOLUNTEER FIREMEN'S ASSOCIATION. Annual convention, Milton, Del. Secretary, George Mayer, Jr., Easton, Md.

May 8-10 — GEORGIA STATE FIRE COLLEGE. Annual fire college, Atlanta. Director, Harry Phillips, 166 Atlanta St., S. W., Atlanta, Ga.

May 14—WEST TEXAS FIREMEN'S AND FIRE MARSHALS' ASSOCIATION. Meets at Munday, Tex. Secretary, E. C. Pruitt, Olney, Tex.

May 20-22 — NEW YORK STATE FIRE CHIEFS' ASSOCIATION. Annual meeting, Poughkeepsie, N. Y. Secretary, Chief Chris W. Noll, Poughkeepsie, N. Y.

May 21-24—IOWA FIRE SCHOOL. 16th Annual Fire School, Iowa State College, Ames, Ia. Director of College, Prof. Lindon J. Murphy, University.

May 23—IOWA FIRE CHIEFS' ASSOCIATION. Annual convention, Ames, Ia. Secretary, L. R. Morris, Ames, Ia.

May 23-25—EASTERN FIRE CHIEFS' ASSOCIATION. Annual conference, Hotel Du Pont, Wilmington, Del. Secretary, Charles E. Clark, Box 217, Wayne, Pa.

May 25 — IOWA FIRE CHIEFS ASSOCIATION, 12th Annual Meeting, Ames, Ia. Secretary-Treasurer, Chief L. R. Morris, Ames.

June 10-12 — MINNESOTA STATE FIRE DEPARTMENT ASSOCIATION. Meeting at Virginia, Minn. Secretary, Fred Pfaender, New Ulm, Minn.

June 11—STATE FIREMEN'S AND FIRE MARSHALS' ASSOCIATION OF TEXAS. Annual convention, Houston, Tex. Secretary, Olin Culberson, Edna, Tex.

June 11-14—ILLINOIS FIRE COLLEGE. 16th Annual Fire College, Illinois Firemen's Association, University of Illinois, Champaign-Urbana, Ill. Prof. L. H. Provine, Director of School. Roy W. Alsip, Champaign-Urbana, Secretary.

June 18-21—PURDUE STATE FIRE SCHOOL. Fire school meeting, Lafayette, Ind. Assistant Director, Emmett Cox, Indianapolis, Ind.

June 19 — NORTHWESTERN OHIO VOLUNTEER FIREMEN'S ASSOCIATION. Annual convention, Bryan, Ohio. Secretary, J. W. Gardner, Ashland.

June — SOUTH CAROLINA STATE FIREMEN'S ASSOCIATION. Annual convention, Darlington, S. C. Secretary, Paul E. Welburn, Union, S. C.

July—FIRE CHIEFS OF MAINE. Quarterly meeting at Camden, Me. Secretary-Treasurer, Charles W. Bowker, South, Paris, Me.

July 15-17—WISCONSIN STATE FIRE CHIEFS' ASSOCIATION. Annual meeting, Sturgenbay. Secretary, A. U. Simon, Lady Smith, Wis.

July 16-17 — MARITIME FIRE CHIEFS' ASSOCIATION. Annual convention, Campbellton, N. B. Secretary, Charles A. Cunningham, St. John, N. B.

July 22-26—WEST VIRGINIA FIRE SERVICE EXTENSION SCHOOL. Tenth annual state fire school, West Virginia University, Morgantown, W. Va. Director, G. R. Spindler, 121 Mechanical Hall, Morgantown, W. Va.

July — WASHINGTON STATE FIREMEN'S ASSOCIATION. Annual convention. Port Angeles, Wash. Secretary, Hugh M. Leslie, Auburn, Wash.

Aug. — WEST VIRGINIA FIREMEN'S ASSOCIATION. Annual convention, New Martinsville, W. Va. Secretary, H. G. Fridinger, Martinsburg, W. Va.

Aug. — UTAH STATE FIREMEN'S ASSOCIATION. Annual convention, Logan, Utah. Secretary, John J. Creedon, Bingham Canyon, Utah.

Aug. — CONNECTICUT STATE FIREMEN'S ASSOCIATION. Annual convention, Danbury, Conn. Secretary, D. W. Harford, South Norwalk, Conn.

Aug. 5-6 — NEW YORK STATE FIRE FIGHTERS' ASSOCIATION. Annual convention, Schenectady, N. Y. Secretary, Frank A. Emden, 1403 Mather Ave., Utica, N. Y.

Aug. 4-5 — OHIO STATE VOLUNTEER FIREMEN'S ASSOCIATION. 2nd Annual Convention, Sandy Beach, Akron, Ohio. Secretary, Chief Sid Wellock, Coventry Township.

Aug. 12-17 — NORTH CAROLINA STATE FIREMEN'S ASSOCIATION. Annual meeting, Salisbury, N. C. Secretary, John L. Miller, Concord, N. C.

Aug. 12-17—VIRGINIA STATE FIREMEN'S ASSOCIATION. Annual Convention, Bristol, Va. Secretary, R. B. Barker, Newport News, Va.

*Aug. 20-23 — FIREMEN'S ASSOCIATION, STATE OF NEW YORK. Annual convention, Dunkirk, N. Y. Secretary, Fred A. Davis, 140 Broadway, Fort Edwards, N. Y.

Sept. — NEW JERSEY STATE FIREMEN'S ASSOCIATION. Annual convention. Atlantic City, N. J. Secretary, Evan F. Benners, 24 Branford Pl., Newark, N. J.

Sept. — LOUISIANA STATE FIREMEN'S ASSOCIATION. Meeting at Thibodaux. Secretary, Edward Wright, Hocima, La.

Sept. 3-6 — MARYLAND SHORT COURSE FOR VOLUNTEER FIREMEN. Annual school at the University of Maryland, College Park, Md. Director, Chief J. W. Just, College Park, Md.

Sept. 3-5 — KENTUCKY FIREMEN'S ASSOCIATION. Meeting at Bowling Green. Secretary, V. A. Beam, 2221 W. Broadway, Louisville, Ky.

Sept. 16-17 — TEMISKAMING FIREMEN'S ASSOCIATION. Annual convention, New Liskeard, Ont. Secretary, F. E. Thompson, New Liskeard, Ont.

Sept. 17-18—IOWA FIREMEN'S ASSOCIATION. Meeting at Emmetsburg, Ia. Secretary, Paul A. Soener, Independence, Ia.

Sept. 23-26—CALIFORNIA STATE FIREMEN'S ASSOCIATION. Annual meeting, San Jose, Cal. Secretary-Treasurer, Harry E. Strasser, 2046 Oregon Ave., Long Beach, Cal.

Oct. — FIRE CHIEFS OF MAINE. Quarterly meeting at York Harbor, Me. Secretary-Treasurer, Charles W. Bowker, South Paris, Me.

Oct. — ARKANSAS STATE FIREMEN'S ASSOCIATION. Meeting at Russellville. Secretary, H. D. Compton, Little Rock, Ark.

Oct. 1 — FIREMEN'S ASSOCIATION, STATE OF PENNSYLVANIA. Annual meeting, Lewiston, Pa. Secretary, Charles E. Clark, Wayne, Pa.

Oct. 4 — WALWORTH COUNTY FIRE OFFICERS' ASSOCIATION. Annual meeting. East Troy, Wis. Secretary, C. A. Foster, Lake Geneva, Wis.

Oct. 15-17 — ILLINOIS FIREMEN'S ASSOCIATION. Annual meeting, Murphysboro, Ill. Secretary, Roy W. Alsip, Champion, Ill.

Oct. 15-17 — NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Omaha, Neb. Secretary, Louis A. Novak, Norfolk, Neb.

*The notices marked with an asterisk are either appearing for the first time or have been changed since the preceding issue.

$250,000 Blaze Provides Excitement

Rapidly spreading flames swept through the main business section of Milford, Del., leaving a $250,000 loss in their wake. Three stores, a factory, and a three-story building were damaged by the blaze.

Firemen had taken positions on the roof of the factory in order to direct water on an adjacent store. Flames broke out on the roof on which they were standing. Firemen were forced to jump about twenty feet from the roof to the ground in order to escape being burned, because their escape by ladders was cut off.

Shortly after the blaze started, the manager of one of the stores rushed up and opened one of the doors. This caused a back draft explosion which filled the store with flames. After this blast, the fire spread so rapidly that four nearby towns were summoned to aid in fighting the fire.

Retires After Serving Fifty Years

After serving fifty years in the Volunteer Fire Company, Mount Agr, Ia., B. H. Thompson retired from active service. Members of the Company presented him with an Exempt Fireman's Certificate and an armchair for his extended service which began in 1889.

Mr. Thompson Enjoys His Gifts

Correction

On page 15 of the January 1940 issue of Fire Engineering, the answer to the third question on explosive dust mixtures should be false instead of true.

1,000 School Fires Reported

The National Fire Protection Association of Boston, Mass., has published a seventy-two-page illustrated book which brings to light the fire record of American schools. The purpose of the book is to show to what extent the responsibility of safeguarding the school children has been met by the public. School fires that have been reported in sufficient detail since 1928 are tabulated according to cause, type of building, kind of school, causes of loss of life in school buildings, construction of building involved, room in which fire started, and the effect of automatic sprinklers.

The report points out the progress that has been made in the construction of new buildings and the fireproofing of old buildings.

FIREMAN'S NEW SAFETY COAT MEETS WITH GREAT APPROVAL

MANY CITIES ADOPT MIDWESTERN COAT

The new Midwestern Safety Coat recently introduced has met with instant success because Fire Chiefs, Firemen, and Safety Boards quickly saw its adoption meant a big decrease in bad accidents.

The picture tells much of the reason for the success of this Midwestern Coat. Firemen can be seen on dark nights—through fog, and smoke. Fewer men will be knocked off ladders and buildings by heavy hose streams . . . will be more easily found in fallen debris.

Midwestern has developed a new exclusive rubber cloth in which the white stripe is molded in. It is rubberized as a part of the material and is not sewed in or glued on.

Another great feature is the famous Midwestern Safety snap that can be instantly fastened or unfastened with one hand.

Note Chiefs:
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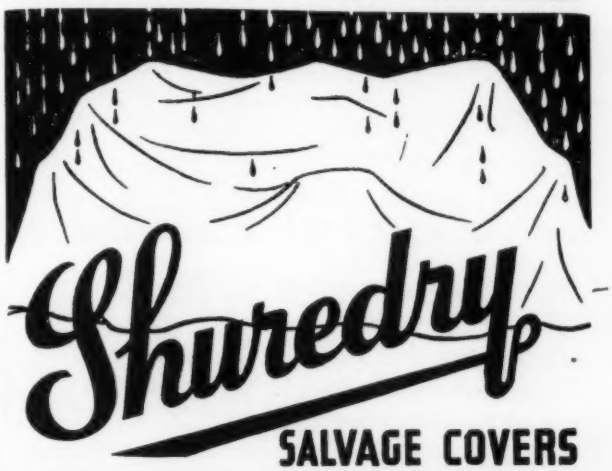

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PROGRESSIVE Fire Chiefs everywhere recognize the necessity of improved salvage work if they are to better their records. Shuredry Salvage Covers have been used to illustrate salvage talks by leading Fire Chiefs at many conventions. They have been recommended by these practical men in service for dependability, efficiency and real economy to the department. Easy to handle and to spread, they will not crack when folded or stored. They do not sweat and are chemically treated against mildew.

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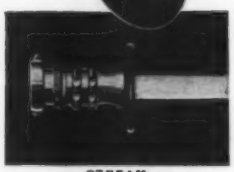
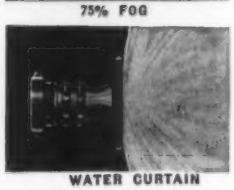


STREAM

75% FOG



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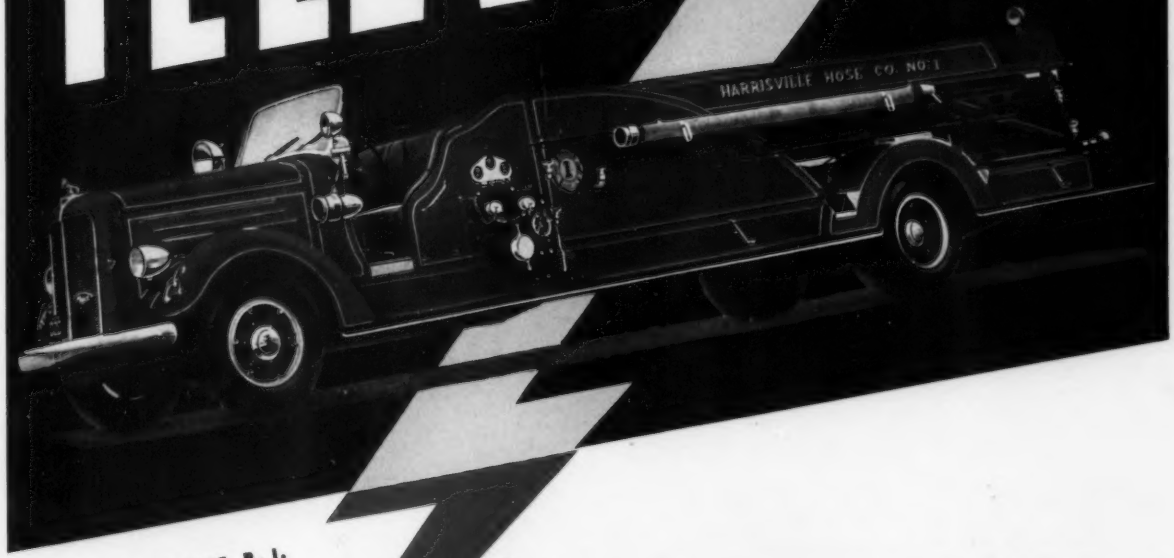

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